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# DIVISION OF ILLUSTRATION STATIONS

## INTERIM REPORT OF THE CHIEF SUPERVISOR

J. FIXTER

FOR THE YEAR 1921

General View of the Illustration Station at Milk River, Alberta.

OTTAWA
F. A. ACLAND
PRINTER TO THE KING'S MOST EXCELLENT MAJESTY
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# DIVISION OF ILLUSTRATION STATIONS

## REPORT OF THE CHIEF SUPERVISOR, JOHN FIXTER

The activities of the Division of Illustration Stations have been considerably extended during the past year. During this period, illustration work has been established at twenty-two additional centres. This brings the number of stations in operation up to eighty-six. Of this number eight are located in British Columbia, twelve in Alberta, twelve in Saskatchewan, thirty-two in Quebec, ten in New Brunswick, and twelve in Nova Scotia. Three additional stations were selected, during the summer, in British Columbia, and three in Saskatchewan for cropping in 1922.

In carrying out this work the owner of a farm, when chosen, co-operates with the division and, on a small rental basis, sets aside a certain area, varying from ten to seventy-five acres, for demonstration purposes. In return, the farmer carries on such rotations, grows such crops and performs such cultural practices as are deemed necessary by the division to stimulate greater and more economical production.

From the stations, as centres, the division has endeavoured to disseminate information on the undermentioned topics:—

The Systematic Rotation of Crops and the Importance of Keeping Farm Accounts.
The Adoption of Better Cultural Methods.
Growing Clover Seed.
The Value of Tile Drainage.
The Advantages of After-harvest Cultivation.
Introducing Mangels and Turnips into New Districts.
Introducing New and Suitable Varieties of Grain, and Encouraging the Distribution of Good Seed.
The Value of Selecting Seed Potatoes.
Extending the Usefulness and Encouraging the Growing of Corn.
Demonstrating Successful Methods of Growing and Harvesting Sunflowers.
Advice and Direction in Grading up the Dairy Herd.
Summerfallow Treatment.
The Profitable Recurrence of a Summer-fallow in a Rotation.
The Growing of Alfalfa.
Encouraging the Production of Fall Rye.
Introducing Western Rye into the Rotation on the Prairie.
Introducing Sweet Clover as a Humus Former where Light Drifting Soils occur.
Encouraging the Growing of a Farm Garden.
Advice and Encouragement in the Improvement of the Farm Poultry Flock.

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## A FEW SPECIAL FEATURES AND THEIR RESULTS

### *Introducing Mangels and Turnips.*

Worn-out meadows are too common a sight; these are the result of a one-crop system. The fallacy of this system oftimes is not sufficiently appreciated, with the result that, in many sections, productive lands are going back to cedars and balsams through lack of tillage. The reclamation of these lands to profitable production can best be accomplished by mixed farming practices and the use of hoed crops. At public meetings held at certain centres prior to the establishment of the Illustration Stations, the opinion was voiced that root crops could not be profitably grown in those districts because of soil and climatic conditions. At one of these centres an Illustration Station was established the following year. The first season the station was in operation, twenty-one tons of turnips and fourteen tons of mangels were produced per acre. In introducing mangels and turnips the work of the Illustration Station takes on two forms, first, the demonstrating of methods that will reduce hand labour, and secondly, the extension of the root-growing areas. With this idea of introducing and improving the cultural practices relative to these two crops, the growing of either one or both is being demonstrated on the Illustration Stations in Quebec, New Brunswick and Nova Scotia.

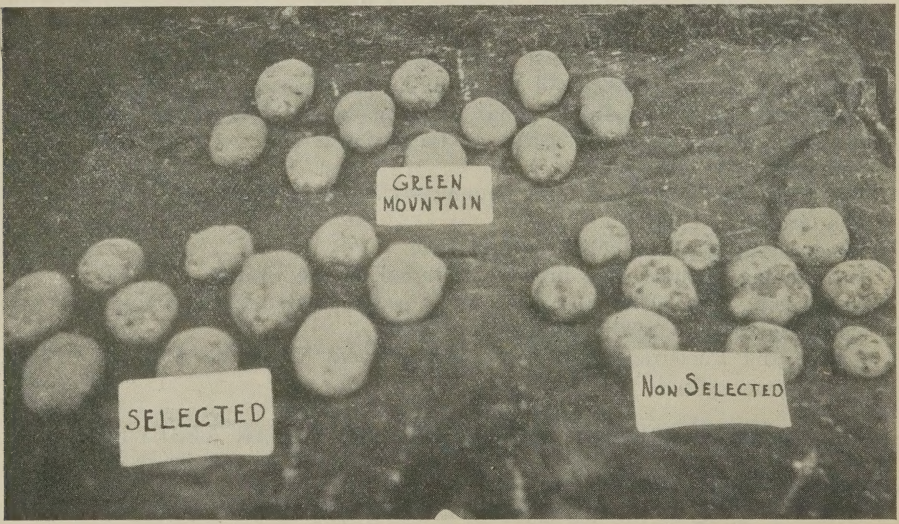
### *Introducing New Varieties and the Sale of Seed.*

Experiments clearly show that many farmers are not growing the varieties of wheat, oats and barley that are best suited to the soil and climatic conditions common to their district. In this respect the Experimental Farms have gathered a great deal of valuable information, not only in the testing of the old varieties, but also in the selecting and breeding of new varieties for districts where the old ones have not proven suitable.

Satisfactory crop production can best be effected by the sowing of good seed, on a well prepared seed bed; the lack of one reduces the value of the other. On the Illustration Stations, a special effort is made to grow and maintain good seed of the varieties that best suit the district. In this way, the Illustration Station serves as a seed centre where surrounding farmers may see how these varieties perform under soil and climatic conditions similar to their own. If impressed with the productivity of these crops, it is possible for them to purchase seed from the operators, at moderate prices.

### *The Value of Selecting Potatoes for Seed.*

Although the potato crop is one of considerable magnitude, its production could be considerably increased by a rigid hill selection of the potatoes intended for seed. There are on the market many varieties of potatoes, all of varying value from a yield and table standpoint. Too often these are indiscriminately used for seed, regardless of their origin or the purpose for which they were marketed. On the Illustration Stations the endeavor is being made to introduce good varieties and, at the same



To grow good potato crops, plant selected seeds free from disease.

time, demonstrate the necessity of hill selecting, and the importance of controlling blight by spraying, and other diseases, by selection and use of disease-free seed.

This season, comparisons were drawn as to the suitability of the Green Mountain and Early Eureka varieties, for Quebec conditions. The yields were extremely variable because of the continued drought. Where the two varieties were grown on the same farm, Green Mountain yielded eight bushels in excess of the Eureka.

In some localities, the Eureka outyielded the Green Mountain. This year's results would indicate that the Early Eurekas prefer the lighter and earlier types of soil. In a comparison of the Green Mountain and the Irish Cobbler in New Brunswick and Nova Scotia, the Green Mountain outyielded the Irish Cobbler, on an average, by forty-nine bushels per acre.

The value of selected seed was well demonstrated on the Illustration Station operated by Mr. Arsenault, Adamsville, New Brunswick. Selected Green Mountain potatoes were supplied by the Experimental Farm, Fredericton, and grown alongside the same variety of unselected seed. The value of selection was not only evident in the form of an increased yield of 149 bushels per acre, but the selected seed was much freer from disease and produced the cleanest tubers; this will be seen from the above cut.

*Sweet Clover as a Forage Crop.*

The value of sweet clover as a forage crop has long been questioned. The latest information, however, goes to show that white sweet clover is a valuable leguminous plant if wisely and considerately used. Its introduction into districts where alfalfa, red clover or alsike flourish is not recommended, but for the dry, humus-depleted soils, sweet clover is capable of great root extension, hence it is a valuable crop for building up soils which are low in fertility and organic matter. Because of its deep-rooting habit, it draws moisture and plant food from the lower soil strata and, at the same time, assists in rendering impervious subsoils more porous.

Studying the nodule development on a newly seeded field of sweet clover at Meota, Sask.

Difficulty is often experienced in getting a satisfactory catch of sweet clover. This is mainly due to four causes:—

(*a*) Seeding with unscarified seed.
(*b*) Not inoculating the seed with nitro-culture.
(*c*) The acid condition of the soil.
(*d*) Covering the seed too deeply.

Demonstration fields of white sweet clover have been established on a number of the Illustration Stations in Alberta and Saskatchewan. At Meota, Sask., Mr. Tait has been growing sweet clover successfully for three years. Sweet clover seeded this spring yielded a ton and a half per acre; part was used for hay, and part for silage. Mr. Tait reports that the silage made good feed and that the cows were fond of it and did well on it. Similarly at Herbert, Sask., Mr. Holmes has been growing sweet clover successfully for four years. The 1920 seeding cut for hay this year gave two cuttings, with a yield of two tons per acre.

## EXPERIENCE IN GROWING SUNFLOWERS ON THE ILLUSTRATION STATIONS

The sunflower crop has been the source of a great deal of interest on the Illustration Stations. In Alberta and Saskatchewan they have been grown for forage purposes, and as an inter-tilled crop, acting as a partial substitute for summer-fallow. In Quebec, New Brunswick and Nova Scotia, it gives promise of being an extremely valuable ensilage crop, especially for those districts to which corn is not well adapted.

The results of the illustration work in the different provinces show, that sunflowers will stand more frost and drouth than corn, and may be planted as early as wheat. For ensilage purposes, the Giant Russian variety has given the best results. Sunflowers should be sown at the rate of twelve pounds to the acre, with the grain drill, in rows three feet or three and a half feet apart, thinning the plants to six inches apart in the row. The crop must be frequently cultivated to keep down weeds and to prevent waste of moisture. Present information indicates that sunflowers should be cut for ensilage purposes when the seeds are in the milk stage. The most satisfactory way to cut this crop is with the corn-binder.

On the Illustration Stations in Alberta and Saskatchewan, sunflowers have been ensiled with good success in pit silos. In Quebec stave silos have been used. Feeding tests at these centres indicate that when cut at the proper stage of maturity, sunflowers make a palatable and nutritious forage crop.

### For the Attention of our Reader

The reader will find further on in this report, a number of valuable deductions drawn from the work on the various stations, as well as hints on weed destruction, seed cleaning, the growing of hoed crops, the economic use of farm implements and tools, the value of treating seed for smut, and the best cultural practices, under conditions as described, and as found on the general farm.

## ILLUSTRATION STATIONS IN BRITISH COLUMBIA

This is the first year the work of the division has extended into British Columbia. Regular cropping work has been carried on, on four stations, during the year. On four other stations the land is being cleared and prepared for cropping in 1922.

The rotations for the province vary with the locality and may briefly be outlined as follows:—

### For the Irrigated Districts

*Seven-year Rotation*

First year.—Hoed crops.
Second year.—Grain, seeded to alfalfa.
Third year.—Alfalfa hay.
Fourth year.—Alfalfa hay.
Fifth year.—Alfalfa hay.
Sixth year.—Alfalfa hay.
Seventh year.—Alfalfa hay.

## For Central British Columbia

### *Seven-year Rotation*

First year.—Hoed crops.
Second year.—Grain seeded to timothy and clover.
Third year.—Clover hay.
Fourth year.—Timothy hay.
Fifth year.—Inter-tilled crop or mixed grain crop.
Sixth year.—Grain seeded to sweet clover.
Seventh year.—Sweet clover, hay, pasture or silage.

### *Four-year Rotation*

First year.—Hoed crops.
Second year.—Grain and seeded.
Third year.—Clover hay.
Fourth year.—Timothy hay.

In making up the report for the province, the cost of production is based on the undermentioned prices. The yields of corn and roots are estimated in all reports. In determining *standard cost,* all stations in the province are figured on the same cost basis. In this way the cost of production is comparative, one station with another. *Actual cost* is based on the prevailing prices of labour, rent of land, etc., at each station.

| | Standard Cost | Actual Cost |
|---|---|---|
| Rent of land, per acre | $2 00 | Based on value of land at 6% interest. |
| Use of machinery, per acre | 0 75 | $0 75 |
| Manual labour, per hour | 0 30 | Based on prices prevalent in the district. |
| Horse labour, per hour | 0 10 | |
| Threshing— | | |
| Wheat, per bushel | 0 07 | |
| Oats, per bushel | 0 04 | |
| Cost of seed— | | |
| Oats, Banner, per bushel | 1 00 | 1 05 |
| Barley, O.A.C., No. 21, per bushel | 1 25 | 1 90 |
| Wheat, Marquis, per bushel | 1 50 | 2 31 |
| Corn, North West Dent | 3 00 | 3 00 |
| Alfalfa, Grimm, per pound | 0 75 | 0 75 |
| Sweet clover, white, per pound | 0 14 | 0 14 |
| Clover, red and alsike, per hundred | 32 00 | 32 00 |
| Timothy, per hundred | 14 50 | 14 50 |

BARRIERE.—*Operator, H. J. L. Eggleston.*

The work carried on at this station throughout the season was preparatory to a seven-year rotation that is to be established. This rotation will include: first-year hoed crop, second-year grain, and seeded to alfalfa. Then the land will be in alfalfa hay for five years.

COMOX, VANCOUVER ISLAND.—*Operator, E. H. Davis.*

This was a new station. The land was all broken up in preparation for a four-year rotation. Eight and a half acres were seeded to Banner oats, the remainder to Marquis wheat. Seeding commenced on May 22, and harvesting on August 17. Oats gave an average yield of 88 bushels per acre. It will be impossible to continue the work further on this farm, as it has been sold for subdivision purposes.

FRANCOIS LAKE.—*Operator, R. C. Stanyer.*

All the land on this station was ploughed up and seeded to Banner oats in order to establish the rotation as quickly as possible.

Seeding commenced on May 21. Oats were seeded at the rate of 2½ bushels per acre. In addition field "A" was seeded down with 5 pounds red clover, 5 pounds alsike clover and 10 pounds timothy per acre. The oats were all cut green for oat hay, and averaged 3 tons per acre. A seven-year rotation, as previously outlined for Central British Columbia will be established on this station.

Clearing land on the Illustration Station at Prince George.

**Kamloops.**—*Operator, E. L. Burgess.*

This is the first year that this station has been in operation. The land was all in grain and hoed crop this season. A seven-year rotation, with five years' alfalfa, is being established. Seeding commenced on May 11. Three of the grain fields were seeded to oats, and three to barley, along with 12 pounds Grimm alfalfa per acre, except on field "D" when half was seeded at 10 pounds and half at 16 pounds per acre.

The following table gives the results of the season's work:—

SEVEN-YEAR ROTATION.

| Field. | Yield per Acre. | Standard Cost. | Actual Cost. |
|---|---|---|---|
| "A"—Barley, O.A.C. No. 21, seeded | 33½ bush. | $0.55 per bush. | $0.77 per bush |
| "B"—Barley, O.A.C. No. 21, seeded | 35 " | .56 " | .78 " |
| "C"—Potatoes | 216 " | .30½ " | .36 " |
| "D"—Oats, Banner, seeded | 49 " | .44 " | .55 " |
| "E"—Oats, Banner, seeded | 44½ " | .47 " | .60 " |
| "F"—Oats, Banner, seeded | 50 " | .41 " | .57 " |
| "G"—Barley, O.A.C. No. 21, seeded | 29 " | .66 " | 1·02 " |

All crops on this station were grown under irrigation. In making up the cost of producing the crops on the different fields the labour entailed in irrigation is included. The cost of labour alone, for irrigating 27¾ acres of grain crops averaged $6.40, and $5 per acre for potato crops.

MERVILLE, VANCOUVER ISLAND.—*Operator, L. G. M. Pearce.*

This is the first year that this station has been in operation. A four-year rotation is in the course of preparation.

PRINCE GEORGE.—*Operator, R. J. Blackburn.*

During the summer, this station was selected for illustration work.

The land is being cleared and ploughed in preparation for cropping in 1922.

SMITHERS.—*Operator, George Oulton.*

This is the first year that this station has been in operation. The land is being prepared for the establishment of a four-year rotation. This season, three fields were in oats and one in hoed crops. Conditions were quite favourable for growth throughout the season.

The following table gives the results of the season's work:—

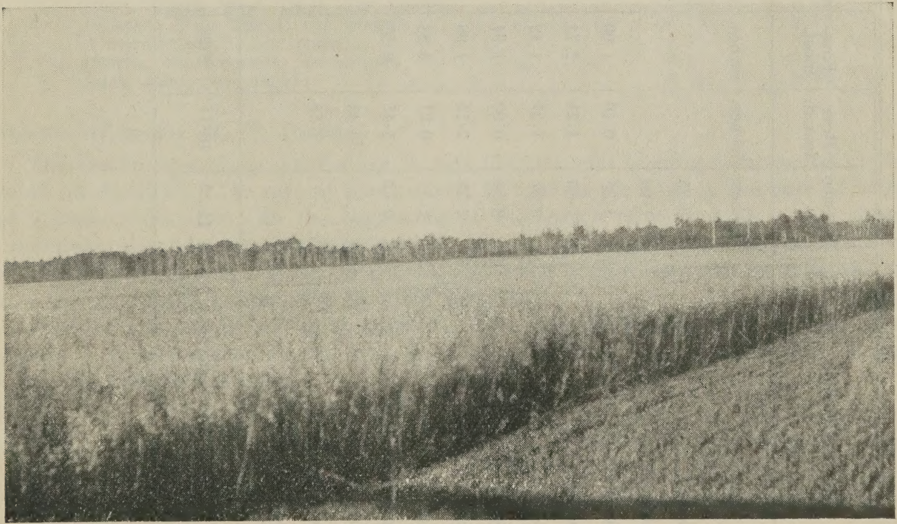
FOUR-YEAR ROTATION.

| Field | Yield per Acre. | Standard Cost. | Actual Cost. |
|---|---|---|---|
| "A"—Potatoes | 200 bush. | $0.24 per bush | $0.28 per bush. |
| Turnips | 120 " | .38 " | .40 " |
| "B"—Oats, Banner, seeded | 52 " | .33 " | .44 " |
| "C"—Oats, Banner, seeded | 52 " | ·33 " | .44 " |
| "D"—Oats, Banner | 52 " | .33 " | .44 " |

Seeding started on May 24. Oats were seeded at the rate of 2 bushels per acre. Field "B" and "C" were seeded down with 6 pounds red clover, 4 pounds alsike and 10 pounds timothy. Field "D" was not seeded to grasses and clovers but was fall ploughed in preparation for hoed crops in 1922.

VANDERHOOF.—*Operator, Desiré Turcotte.*

The station was established this spring. The work carried on throughout the summer was mainly the preparation of the land for a seven-year rotation. The land has been summer-fallowed in preparation for cropping in 1922.



A uniform crop of Banner Oats grown from selected seed at Vanderhoof.

## PRECIPITATION RECORDS TAKEN ON THE ILLUSTRATION STATIONS IN ALBERTA, 1921.

| Month. | Bassaro. | Bow Island. | Fore-most. | Grassy Lake | High River. | Jenner. | Mac-Leod. | Milk River. | Munson. | Taber. | Vulcan. | Wain-wright. | Whitla. | Youngs-town. | Pincher Creek. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | inches. | inches. | inches. | inches. | inches. | inches. | inches. | inches. | inches. | inches. | inches. | inches. | inches. | inches. | inches. |
| January | 0·75 | ........ | ........ | ........ | 1·55 | 0·48 | 1·21 | 0·35 | ........ | 0·40 | 1·4 | ........ | 0·60 | ........ | 1·0 |
| February | 1·00 | ........ | ........ | ........ | 0·85 | 0·60 | 0·61 | 0·20 | ........ | 0·60 | 0·5 | ........ | 0·60 | ........ | 1·50 |
| March | 1·33 | 0·10 | 1·00 | ........ | 2·18 | 1·13 | 1·55 | 0·58 | ........ | 1·24 | 1·5 | ........ | ........ | ........ | 3·50 |
| April | 1·80 | 1·21 | 2·21 | 0·52 | 2·70 | 1·60 | 0·13 | 0·93 | 0·55 | 0·95 | 1·3 | 0·90 | 1·80 | 2·38 | 0·93 |
| May | 3·07 | 1·37 | 1·12 | 0·92 | 1·17 | 1·64 | 1·30 | 3·57 | 0·89 | 1·94 | 0·55 | 1·78 | 2·51 | 2·35 | 2·22 |
| June | 0·56 | 0·99 | 1·94 | 0·77 | 1·48 | 1·06 | 0·57 | 1·65 | 0·19 | 0·41 | 0·28 | 0·45 | 0·97 | 1·09 | 1·30 |
| July | 2·39 | 2·15 | 1·98 | 1·86 | 1·08 | 2·87 | 1·81 | 2·00 | 2·37 | 2·71 | 1·22 | 1·63 | 1·85 | 2·71 | 2·33 |
| August | 2·53 | 0·91 | 0·83 | 1·49 | 1·85 | 0·60 | 2·10 | 0·42 | 1·88 | ........ | 0·82 | 1·25 | 0·47 | 0·62 | 0·25 |
| September | 0·72 | 1·45 | 0·85 | 1·43 | 0·50 | 1·00 | 0·66 | 1·20 | ........ | ........ | 1·07 | 1·78 | 1·28 | 2·02 | 1·55 |
| October | ........ | 0·43 | ........ | 0·56 | 0·30 | ........ | ........ | 0·09 | ........ | ........ | 0·08 | ........ | 0·75 | ........ | 0·03 |
| November | ........ | 1·56 | ........ | 1·51 | ........ | ........ | ........ | ........ | ........ | ........ | 0·80 | ........ | 0·21 | ........ | 2·25 |
| December | ........ | ........ | ........ | ........ | ........ | ........ | ........ | ........ | ........ | ........ | 1·5 | ........ | ........ | ........ | 2·0 |
| Total recorded | 14·15 | 10·17 | 9·93 | 9·06 | 13·66 | 10·98 | 9·94 | 10·99 | 5·88 | 8·25 | 11·02 | 7·79 | 11·04 | 11·17 | 18·8 |

## ILLUSTRATION STATIONS IN ALBERTA

Twelve Illustration Stations have been in operation in Alberta during the past year. The station at Vulcan was selected late in the spring. The work carried on throughout the season has been of a preparatory nature, hence is not treated in a separate report.

Upon ten of the established stations, additional work has been added in the form of forage crops, variety field tests of grains, and partial fallow substitution by the use of corn and sunflowers. This new work will be continued in 1922 when further results will be available and more detailed information given.

Speaking generally, the past year in Alberta has been exceedingly trying and difficult for the farmer. Following a promising early crop growth, came drought, cutworms, heat, grasshoppers, in some districts hail. After such threshing as was possible had been done a price of product prevailed which (given an average yield) was below the cost of production.

In making up this report, the cost of production is based on the undermentioned prices, the yield of corn and hay being estimated in all reports. In determining *standard cost,* all Illustration Stations in a province are figured on the same cost basis, so that the cost of production may be comparative on the different stations in that province. By *actual cost* is meant the cost of production based on prices prevalent at each station.

| | Standard Cost | Actual Cost |
|---|---|---|
| Rent of land, per acre | $2 00 | Based on value of land at 6% interest. |
| Use of machinery, per acre | 0 75 | $0 75 |
| Manual labour, per hour | 0 30 | Based on prices prevalent in the district. |
| Horse labour, per hour | 0 10 | |
| Threshing— | | |
| Wheat, per bushel | 0 07 | |
| Oats, per bushel | 0 04 | |
| Cost of Seed— | | |
| Oats, Gold Rain,, per bushel | 1 00 | 1 05 |
| Oats, Banner, per bushel | 1 00 | 1 05 |
| Oats, Victory, per bushel | 1 00 | 1 87 |
| Wheat, Kubanka, per bushel | 1 50 | 1 98 |
| Wheat, Marquis, per bushel | 1 50 | 2 31 |
| Corn, North West Dent, per bushel | 3 00 | 3 00 |
| Western Rye Grass, per pound | 0 17 | 0 17 |
| Alfalfa, Grimm, per pound | 0 75 | 0 75 |
| Clover, white sweet, per pound | 0 14 | 0 14 |
| Sunflowers, per pound | 0 09 | 0 09 |

BASSANO—*Operator, R. H. Jones.*

The season opened up quite early in this district, and seeding commenced at this station on April 18. The rate of seeding was 1¼ bushels per acre in the case of wheat and 2 bushels for oats. At the beginning of the season there was an ample supply of moisture to produce a fair germination. During May and June, the rainfall was not sufficient to support a vigorous growth, and when drying heat was experienced, the crops were set back appreciably in yield prospects.

Harvest was completed on August 8. The rainfall for the nine months from January 1 to September 30, amounted to 14.15 inches. The greater part of this fell during July and August.

The following table gives the results of the season's work:—

| —— | Days maturing. | Yield per Acre. | Standard Cost. | Actual Cost. |
|---|---|---|---|---|
| *Two-year rotation with wheat—* | | | | |
| Summer-fallow | ............ | ................ | $6.67 per acre. | $7.87 per acre. |
| Wheat, Marquis on fallow | 112 | 13 bush. | .96 per bush | 1.54 per bush. |
| *Four-year rotation with wheat and rye grass—* | | | | |
| Summer-fallow | ............ | ................ | 6.67 per acre. | 7.87 per acre. |
| Wheat, Marquis on fallow seeded to Western rye | 112 | 9 bush 12 lbs. | 1.15 per bush. | 1.78 per bush. |
| Western rye grass hay | ............ | 1,000 lbs. | 12.04 per ton. | 14.08 per ton. |
| Western rye grass hay | ............ | 1,000 lbs. | 12.04 per ton. | 14.08 per ton. |
| *Two-year rotation with oats.* | | | | |
| Summer-fallow | ............ | ................ | ................ | ................ |
| Oats (sheaves) on fallow | ............ | 1,200 lbs. | 19.32 per ton. | 28.12 per ton. |

*Preparing and handling the summer-fallow.*—Results on the Illustration Stations show that land intended for fallow requires attention early in the season. By passing the disc over the stubble in the spring, a mulch is formed which conserves moisture, encourages weed seed germination, and, at the same time, the soil is placed in such condition as to make ploughing easier. Summer-fallow ploughing should be finished in June. This operation should be done thoroughly and to a medium depth. The land should be worked with a duck-tooth cultivator at such intervals as the weed growth requires. In the autumn, the same implement should be passed over the ground in the direction crossing the sweep of the prevailing wind. This tends to reduce soil drifting.

DELACOUR—*Operator, A. H. Fennessey.*

Seeding commenced at this station on April 15. Wheat was sown at the rate of 1½ bushels and oats 2½ bushels per acre. Early spring conditions were very favourable for crop growth; in mid-summer, however, a long dry period occurred, seriously injuring growth. At its close, fallow crops alone were standing up to the unfavourable conditions. On the evening of August 9, a further disaster visited the district in the form of a hailstorm, which, according to official estimate, damaged the grain crops to the extent of 75 per cent. At threshing time, the appraisal was found to have been low, as very small yields were registered from the separator. Harvesting was completed by August 20.

The following table gives the results of the season's work:—

| — | Days maturing. | Yield per Acre. | Standard Cost. | Actual Cost. |
|---|---|---|---|---|
| *Three-year rotation with wheat—* | | | | |
| Summer-fallow | | | $6.51 per acre. | $7.92 per acre. |
| Wheat, Marquis after fallow | 116 | 5 bush. | 2.38 per bush. | 3.54 per bush. |
| Wheat, Marquis after wheat | 118 | 2 " | 4.52 per bush. | 6.39 per bush. |
| *Four-year rotation with wheat and western rye—* | | | | |
| Summer-fallow | | | 6.71 per acre. | 8.17 per acre. |
| Wheat, Marquis after fallow | 118 | 2 bush. | 5.21 per bush. | 8.03 per bush. |
| Western rye grass (1st year) | | A failure | 2.75 per acre. | 3.15 per acre. |
| Western rye grass (2nd year) | | A failure | 2.75 per acre. | 3.15 per acre. |
| *Three-year rotation with oats.—* | | | | |
| Summer-fallow | | | 6.71 per acre. | 8.17 per acre. |
| Oats, Banner, after fallow taken for sheaf feed | | 1 ton. | 8.55 per ton. | 9.64 per ton. |
| Oats, Banner, after oats taken for sheaf feed | | 1,000 lbs. | 23.19 per ton. | 32.77 per ton. |
| *Demonstration test Fields.—* | | | | |
| Wheat, Ruby | 99 | 6 bush. | 1.30 per bush. | 2.00 per bush. |
| Oats, Victory, taken as sheaf feed | | 1 ton. | 12.01 per ton. | 18.68 per ton. |
| Oats, Gold Rain, taken as sheaf feed | | 1 ton. | 11.76 per ton. | 16.57 per ton. |

The variety tests are of little value this year on account of the hailstorm on the evening of August 9.

Working the summer-fallow with a duck-foot cultivator.

FOREMOST—*Operator, T. H. Frankish.*

Seeding commenced at this station on April 20. Wheat was sown at the rate of 1¼ bushels and oats at 2 bushels per acre. Early conditions were favourable and the first promise was for a satisfactory harvest. However, drought throughout mid-summer, accompanied by heat, dwarfed all prospects of a good crop, and considerably lower than an average yield was the result. Harvest was completed by September 1. Rainfall for the summer season recorded at this point, totalled 9.93 inches.

The following table gives the results of the season's work:—

| —— | Days maturing. | Yield per Acre. | Standard Cost. | Actual Cost. |
|---|---|---|---|---|
| *Two-year rotation with wheat—* | | | | |
| Summer-fallow | ........ | ........ | $6.39 per acre. | $7.66 per acre. |
| Wheat, Marquis, after fallow | 132 | 11 bush. | .95 per bush. | 1.34 per bush. |
| *Four-year rotation with wheat and western rye—* | | | | |
| Summer-fallow | ........ | ........ | 6.39 per acre. | 7.66 per acre. |
| Wheat, Marquis, after fallow | 132 | 10 bush. | 1.03 per bush. | 1.46 per bush. |
| Oats, Banner, grown where grass seeds failed, taken as sheaf feed | ........ | 1,200 lbs. | 13.78 per ton. | 15.80 per ton. |
| Oats, Banner, grown in place of hay crop | 129 | 15 bush. | .58 per bush. | .79 per bush. |
| *Two-year rotation with oats.—* | | | | |
| Summer-fallow | ........ | ........ | 5.90 per acre. | 6.98 per acre. |
| Oats, Victory, after fallow | 121 | 14 bush. | .80 per bush. | 1.27 per bush. |
| *Demonstration test Fields—* | | | | |
| Corn and Sunflowers, a failure, owing to poor germination and drought | ........ | No crop. | 9.17 per acre. | 11.07 per acre. |
| Wheat, Kubanka | 133 | 4 bush. 20 lbs. | 2.06 per bush. | 2.76 per bush. |
| Oats, Victory | 120 | 14 bush. | .80 per bush. | 1.27 per bush. |

GRASSY LAKE.—*Operator, J. E. James.*

Seeding commenced at this station on April 20. Wheat was sown at the rate of 1¼ bushels and oats at 2 bushels per acre. Early favourable conditions were not lasting and in some late-sown grains, noticeably Kubanka wheat and Victory oats, germination was so tardy that crops failed to develop or mature grain in the regular way. Owing to continued drought with heat, almost a crop failure was experienced. Harvest was completed by August 10.

Rainfall recorded from April 1 to November 30 totalled 9·06 inches. The greater part of this amount fell in the last half of this period and was too late to be of much benefit to the crop.

The following table gives the results of the season's work:—

| —— | Days maturing. | Yield per Acre. | Standard Cost. | Actual Cost. |
|---|---|---|---|---|
| *Two-year rotation with wheat—* | | | | |
| Summer-fallow | ........ | ........ | $5.53 per acre. | $5.30 per acre. |
| Wheat, Marquis, after fallow | 112 | 5 bush. | 2.17 per bush. | 2.95 per bush. |
| *Four-year rotation with wheat and western rye* | | | | |
| Summer-fallow | ........ | ........ | 5.53 per acre. | 5.30 per acre. |
| Wheat, Marquis, after fallow | 111 | 4 bush. | 2.69 per bush. | 3.63 per bush. |
| Oats, Banner, grown in place of Western rye grass | ........ | 8 bush. | 1.02 per bush. | 1.12 per bush. |
| Oats, Banner, as a substitute for hay crop. | | A failure. | 4.68 per acre. | 4.52 per acre. |
| *Two-year rotation with oats—* | | | | |
| Summer-fallow | ........ | ........ | 5.46 per acre. | 5.23 per acre. |
| Oats, Banner, after fallow | 97 | 4 bush. | 2.30 per bush. | 2.80 per bush. |

HIGH RIVER.—*Operator, B. F. Kiser.*

Seeding commenced at this station on April 19. Wheat was sown at the rate of 1½ bushels and oats at 2¼ bushels per acre.

The favourable conditions which prevailed in the early spring were followed by a scarcity of moisture, hot winds, and a threatened attack by grasshoppers. The persistent work of the operator in controlling weeds throughout an adverse season should be noted. The work and results of the Station stood out clearly as an illustration showing the value of good tillage. Harvesting of a moderate crop was completed by August 20.

The rainfall recorded from January 1 to October 31, amounted to 13·66 inches.

The following table gives the results of the season's work:—

| —— | Days maturing. | Yield per Acre. | Standard Cost. | Actual Cost. |
|---|---|---|---|---|
| *Three-year rotation with wheat—* | | | | |
| Summer-fallow | | | $4.15 per acre. | $5.11 per acre. |
| Wheat, Marquis, after fallow | 121 | 18 bush. | .62 per bush. | .90 per bush. |
| Wheat, Marquis, after wheat | 120 | 8 bush. | 1.27 per bush. | 1.71 per bush. |
| *Five-year rotation—* | | | | |
| Summer-fallow | | | 4.15 per acre. | 5.11 per acre. |
| Wheat, Marquis, after fallow | 122 | 17 bush. | .66 per bush. | .95 per bush. |
| Oats, Banner, after wheat | 102 | 15 bush. | .66 per bush. | .82 per bush. |
| Alfalfa hay | | 1000 lbs. | 7.10 per ton. | 9.00 per ton. |
| Western rye grass, a failure, owing to drought | | No crop. | 2.00 per acre. | 3.00 per acre. |
| *Demonstration test Fields.—* | | | | |
| Wheat, Ruby | 103 | 12 bush. | .85 per bush. | 1.39 per bush. |
| Oats, Victory | 111 | 32 bush. | .33 per bush. | .50 per bush. |

JENNER.—*Operator, Jerry Fisher.*

Seeding operations started at this Station on April 20. Wheat was sown at the rate of 1¼ bushels and oats at 2 bushels per acre.

The soil was not sufficiently stored with moisture to carry the crop along in the face of another dry season, and by August 1, cutworms, drought and hot winds had made a crop failure unavoidable. Cutting or heading on the Station was completed by August 23.

The precipitation for the period January 1 to September 30, amounted to 10·98 inches.

The following table gives the results of the season's work:—

| —— | Days maturing. | Yield per Acre. | Standard Cost. | Actual Cost. |
|---|---|---|---|---|
| *Three-year rotation with wheat—* | | | | |
| Summer-fallow | | | 5.57 per acre. | $5.18 per acre. |
| Wheat after fallow | 105 | 2 bush. | 4.77 per acre. | 5.43 per acre. |
| Wheat after wheat | | A failure. | 7.10 per acre. | 7.92 per acre. |
| *Four-year rotation—* | | | | |
| Summer-fallow | | | 5.57 per acre. | 5.18 per acre. |
| Wheat, Marquis, after fallow | 105 | 1½ bush. | 6.41 per bush. | 7.54 per bush. |
| Wheat, Marquis, after wheat on spring ploughing where grass seeds failed | 99 | 5½ bush. | 1.94 per bush. | 2.29 per bush. |
| Oats, Banner, green feed in place of hay crop | | 600 lbs. | 28.92 per ton. | 29.07 per ton. |
| *Three-year rotation with oats—* | | | | |
| Summer-fallow | | | 5.57 per acre. | 5.18 per acre. |
| Oats after fallow | 97 | 10 bush. | 1.02 per bush. | 1.15 per bush. |
| Oats after oats | 97 | 8 bush. | 1.42 per bush. | 1.57 per bush. |
| *Demonstration test Fields.* | | | | |
| Corn and sunflowers, a failure owing to drought | | | 8.50 per acre | 8.47 per acre. |

Milk River.—*Operator, B. L. Cornwall.*

Seeding started at this Station on April 21. Wheat was sown at the rate of 1¼ bushels and oats about 2 bushels per acre.

The early crop growth was favourable. Later, a threatened drought had some effect, as the reserve moisture in the soil was scant. Fortunately, moderate rains during the latter part of the summer improved the situation to a limited extent, with the result that a moderate crop was harvested. Cutting was completed by August 20.

The precipitation for the twelve-month period from October 1, 1920, to September 30, 1921, amounted to 10·99 inches.

The following table gives the results of the season's work:—

| —— | Days maturing. | Yield per Acre. | Standard Cost. | Actual Cost. |
|---|---|---|---|---|
| *Three-year rotation with wheat—* | | | | |
| Summer-fallow | | | $6.51 per acre. | $6.61 per acre. |
| Wheat, Marquis, after fallow on which a seeding of fall wheat had failed | 93 | 12⅕ bush. | 1.09 per bush. | 1.52 per bush. |
| Wheat, Marquis, after wheat | 109 | 20½ bush. | .72 per bush. | .95 per bush. |
| *Four-year rotation, with western rye—* | | | | |
| Summer-fallow | | | 6.53 per acre. | 6.63 per acre. |
| Wheat, Marquis, after fallow | 118 | 19½ bush. | .69 per bush. | .98 per bush. |
| Winter rye grown in place of hay crops | | 24½ bush. | .44 per bush. | .65 per bush. |
| Western rye grass hay | | 1⅕ ton. | 5.68 per ton. | 6.95 per ton. |
| *Three-year rotation with oats.—* | | | | |
| Summer-fallow | | | 6.39 per acre. | 6.49 per acre. |
| Oats, Banner, after fallow | 105 | 32 bush. | .36 per bush. | .56 per bush. |
| Oats, Banner, after oats | 92 | 14½ bush. | .70 per bush. | .82 per bush. |
| *Demonstration test Fields.—* | | | | |
| Ensilage corn for fodder, practically a failure owing to cutworms & gophers. | 90 | 800 lbs. | 25.01 per ton. | 25.26 per ton. |
| Wheat, Kubanka | 121 | 17½ bush. | .70 per bush. | .99 per bush. |
| Oats, Gold Rain | 105 | 36 bush. | .33 per bush | .51 per bush. |
| Oats, Victory | 108 | 35 bush. | .33 per bush. | .55 per bush. |

Pincher Creek.—*Operator, Sandgren and Carlson.*

Seeding started at this Station on April 28. Wheat was sown at the rate of 1½ bushels and oats at 2¼ bushels per acre.

The early growth of grain was good; later on drought and heat rendered condition serious, so much so that at one time, a crop failure seemed unavoidable. However, the black, rich soil at this point is particularly strong in recuperative powers, so that when a more liberal supply of moisture came in late summer, the grain fields rallied to some extent and gave a moderate return at threshing time. Harvesting was completed by August 20. The rainfall from January 1 to December 31, 1921, was 18.86 inches.

The following table gives the results of the season's work:—

| —— | Days maturing. | Yield per Acre. | Standard Cost. | Actual Cost. |
|---|---|---|---|---|
| *Three-year rotation with wheat—* | | | | |
| Summer-fallow | ............ | ................ | $5.45 per acre. | $7.20 per acre. |
| Wheat, Marquis, after fallow | 112 | 18 bush. | .71 per bush. | 1.29 per bush. |
| Wheat, Marquis, after wheat | 112 | 14 bu. 24 lbs. | .88 per bush. | 1.37 per bush. |
| *Four-year rotation with western rye—* | | | | |
| Summer-fallow | ............ | ................ | 5.45 per acre. | 7.20 per acre. |
| Wheat, Marquis, after fallow | 113 | 18 bu. 36 lbs. | .69 per bush. | 1.25 per bush. |
| Western rye grass hay | ............ | 1000 lbs. | 10.84 per ton. | 12.77 per ton. |
| Alfalfa & Western rye grass hay | ............ | 1000 lbs. | 9.30 per ton. | 11.69 per ton. |
| *Three-year rotation with oats—* | | | | |
| Summer-fallow | ............ | ................ | 5.45 per acre. | 7.20 per acre. |
| Oats, Banner, after fallow | 88 | 11 bush. | 1.10 per bush | 1.89 per bush. |
| Oats, Banner, after oats | 88 | 7 bu. 7 lbs. | 1.75 per bush | 2.62 per bush. |
| *Demonstration test Fields—* | | | | |
| Corn and sunflowers for fodder, a failure | ............ | ................ | 8.45 per acre. | 10.68 per acre. |
| Wheat, Ruby | 109 | 14⅗ bush. | .83 per bush. | 1.63 per bush. |
| Oats, Victory | 99 | 24 bush. | .50 per bush. | .98 per bush. |

WAINWRIGHT.—*Operator, G. C. Boyd.*

Seeding started at this station on April 21. Wheat was sown at the rate of 1¼ bushels and oats at 2¼ bushels per acre. Germination was prompt and uniform giving the grain crops a good start. June, however, was short of moisture. The drying heat threatened the harvest for a time and reduced the hay yield considerably. Frequent showers started on July 2 with a precipitation of 0.43 inch and was followed four days later with a 0.50 inch rain. This improved the grain situation greatly and resulted in a fair harvest. Ensilage corn gave an acceptable return of well matured fodder. Harvest was completed by August 25.

The rainfall for the twelve-month period from October 1, 1920, to September 30, 1921, amounted to 9.04 inches.

The following table gives the results of the season's work:—

| —— | Days maturing. | Yield per Acre. | Standard Cost. | Actual Cost. |
|---|---|---|---|---|
| *Three-year rotation with wheat—* | | | | |
| Summer-fallow | ............ | ................ | $6.81 per acre. | $8.60 per acre. |
| Wheat, Marquis, after fallow | 119 | 26 bush. | .52 per bush. | .70 per bush. |
| Wheat, Marquis, after wheat | 105 | 13 bush. | .89 per bush. | 1.20 per bush. |
| *Four-year rotation with wheat and western rye* | | | | |
| Summer-fallow | ............ | ................ | 6.81 per acre. | 8.60 per acre. |
| Wheat, Marquis, after fallow | 119 | 26 bush. | .52 per bush. | .72 per bush. |
| Western rye grass hay | ............ | 1½ ton. | 4.31 per ton. | 4.85 per ton. |
| Western rye grass hay | ............ | 1 ton. | 6.30 per ton. | 7.08 per ton. |
| *Three-year rotation with oats—* | | | | |
| Summer-fallow | ............ | ................ | 6.81 per acre. | 8.60 per acre.. |
| Oats, Banner, after fallow | 108 | 106 bu. 14 lbs. | .16 per bush. | .21 per bush. |
| Oats, Banner, after oats | 103 | 50 bu. 14 lbs. | .27 per bush. | .34 per bush. |
| *Demonstration test Fields.—* | | | | |
| Russian sunflowers as fodder | ............ | 5⅓ ton. | 2.63 per ton. | 3.15 per ton. |
| Corn, North West Dent, as fodder | 100 | 7¼ ton. | 1.93 per ton. | 2.31 per ton. |
| Wheat, Ruby, 4th crop | 101 | 14 bush. 14 lbs. | .84 per bush. | 1.22 per bush. |
| Oats, Gold Rain, 4th crop | 96 | 48 bu. 14 lbs. | .25 per bush. | .30 per bush. |
| Potatoes, Wee MacGregor | ............ | 387 bush. | ............... | ............... |

Quite interesting comparisons were made at this station between corn and sunflowers. Both crops were cut with the grain binder, cutting one row at a time. The sheaves were shocked on the field and allowed to cure as fodder. The operator finds that he has obtained a quantity of valuable feed from these crops which is much relished by his calves, cows and horses. The plants are being fed in the stalk. The horses are eating the sunflowers in preferance to corn or green oat sheaves. In fact, so useful is this fodder to the horses, that Mr. Boyd has reserved a supply of sunflowers to feed at seeding time. In field appearance and yield the corn surpassed the sunflowers. This difference may be partially overcome by an earlier seeding of the latter, as the sunflower is found to be more hardy than corn.

WHITLA.—*Operator, R. H. Babe.*

Seeding operations commenced at this station on April 23. Wheat was sown at the rate of 1 bushel and oats at 2 bushels per acre.

The spring opened up very favourably, affording a good germination and a very promising early growth. Following this, unfortunately, came drought, cutworms and very hot weather. During the month of June, when a plentiful supply of moisture was needed, the rainfall for the thirty days amounted to less than one inch. Harvest was completed by August 10.

The precipitation from January 1 to December 31 amounted to 11·04 inches.

The following table gives the results of the season's work:—

| —— | Days maturing. | Yield per Acre. | Standard Cost. | Actual Cost. |
|---|---|---|---|---|
| *Two-year rotation with wheat—* | | | | |
| Summer-fallow | | | $7.83 per acre. | $8.05 per acre. |
| Wheat, Marquis, after fallow | | A failure. | 11.41 per acre. | 14.60 per acre. |
| *Four-year rotation with western rye grass—* | | | | |
| Summer-fallow | | | 7.83 per acre. | 8.05 per acre. |
| Wheat, Marquis, after fallow | | A failure. | 11.41 per acre. | 14.60 per acre. |
| Western rye grass of 1920 a failure | | | 9.36 per acre. | 9.45 per acre. |
| Oats, Banner, as sheaf feed | | 1⅕ tons. | 9.31 per ton. | 9.75 per ton. |
| *Two-year rotation with oats—* | | | | |
| Summer-fallow | | | 7.83 per acre. | 8.05 per acre. |
| Oats, Banner, after fallow | 84 | 12 bush. | .94 per bush. | 1.27 per bush. |
| *Demonstration test fields.—* | | | | |
| Corn and sunflowers, taken as fodder, damaged by cutworm to some extent. | | 1 ton. | 13.47 per ton. | 14.49 per ton. |
| Alfalfa in rows. | | 1,500 lbs. | 9.89 per ton. | 6.87 per ton. |
| Alfalfa regular seeding | | 400 lbs. | 37.08 per ton. | 33.25 per ton. |
| Wheat, Kubanka | 99 | 6 bush. | 1.18 per bush. | 1.39 per bush. |
| Oats, Gold Rain, taken as sheaf feed | | 1 ton. 400 lbs. | 6.62 per ton. | 5.91 per ton. |
| Oats, Victory | 83 | 40 bush. | .32 per bush. | .60 per bush. |

From the above table the yields of Banner and Victory oats may be somewhat misleading. This wide difference in yield may, in part, be accounted for by the varying stage of their maturity when a hail storm passed over the district. The Banner was nearly ripe and shattered more than the Victory. However, Mr. Babe observed that the Victory gave promise of being the better crop all through the season.

YOUNGSTOWN.—*Operator, G. S. Coad.*

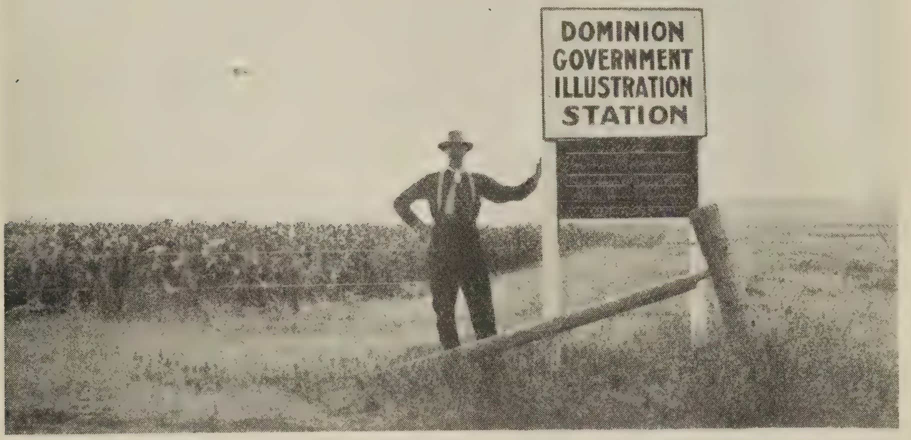
Seeding commenced at this station on April 19. Wheat was sown at the rate of 1¼ bushels and oats at 2 bushels per acre.

Crops germinated well and made a uniform growth during the early part of the growing season. For a period in mid-summer, unfavourable weather conditions existed in the form of heat and drought. The hot, dry weather injured crops to the extent that a full harvest could not be realized. Cutting was completed by August 20.

The rainfall recorded for the six months, April to September, inclusive, amounted to 11·17 inches.

The following table gives the results of the season's work:—

| — | Days maturing. | Yield per Acre. | Standard Cost. | Actual Cost. |
|---|---|---|---|---|
| *Three-year rotation with wheat—* | | | | |
| Summer-fallow | ............ | ................ | $6.01 per acre. | $6.91 per acre. |
| Wheat Marquis, after fallow | 114 | 15 bush. | .92 per bush. | 1.26 per bush. |
| Wheat, Marquis, after wheat | 121 | 10 bush. | 1.24 per bush. | 1.57 per bush. |
| *Five-year rotation with western rye grass—* | | | | |
| Summer-fallow | ............ | ................ | 6.42 per acre. | 7.40 per acre. |
| Wheat, Marquis, after rye grass sod | 121 | 7 bush. | 1.26 per bush. | 1.47 per bush. |
| Oats, Banner, taken as sheaf feed | ............ | 1 ton. | 9.66 per ton. | 11.85 per ton. |
| Western rye grass hay | ............ | 1 ton. | 5.62 per ton. | 5.64 per ton. |
| Western rye grass hay | ............ | 1 ton. | 5.33 per ton. | 5.25 per ton. |
| *Demonstration test field—* | | | | |
| Oats, Victory | ............ | 23 bush. | .44 per bush. | .67 per bush |



A good method of advertising farm products.

PRECIPITATION RECORDS TAKEN ON THE ILLUSTRATION STATIONS IN SASKATCHEWAN, 1921

| Month. | Davidson. | Herbert. | Lloydminster. | Maple Creek. | Pambrum. | Prelate. | Radville. | Shaunavon. | Tugaske. | Weyburn. | Zealandia. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | inches. | inches. | inches. | inches. | inches. | inches. | inches. | inches. | inches. | inches. | inches. |
| January | ........ | ........ | ........ | 0·40 | ........ | ........ | ........ | ........ | ........ | ........ | ........ |
| February | ........ | ........ | ........ | 0·30 | ........ | ........ | ........ | ........ | ........ | ........ | ........ |
| March | ........ | ........ | ........ | 1·70 | ........ | ........ | 0·06 | 1·30 | ........ | ........ | ........ |
| April | ........ | 1·63 | 2·89 | 2·97 | 1·37 | 1·90 | 1·00 | 1·85 | 1·08 | 1·37 | 1·48 |
| May | 2·51 | 0·86 | 2·57 | 2·31 | 2·90 | 0·96 | 1·68 | 1·63 | 2·68 | 1·01 | 0·70 |
| June | 2·20 | 1·29 | 1·03 | 3·14 | 2·66 | 1·87 | 5·72 | 2·07 | 1·60 | 4·54 | 1·36 |
| July | 4·01 | 1·42 | 3·88 | 2·65 | 2·97 | 1·51 | 3·01 | 3·12 | 1·89 | 3·77 | 2·12 |
| Augsnt | 0·60 | 0·80 | 2·32 | 0·77 | 1·19 | 0·80 | 1·36 | 0·05 | 1·49 | 1·29 | 0·60 |
| September | 3·90 | 4·28 | 1·86 | 2·67 | 0·54 | 0·25 | 1·46 | 0·28 | 5·52 | 2·33 | 1·97 |
| October | 0·13 | 1·00 | 0·16 | 0·52 | ........ | 0·25 | 0·26 | 0·32 | 1·62 | 0·10 | ........ |
| November | ........ | ........ | 0·05 | 0·48 | ........ | ........ | ........ | ........ | ........ | ........ | ........ |
| December | 1·0 | ........ | ........ | ........ | ........ | ........ | ........ | ........ | ........ | ........ | ........ |
| Total recorded | 14·35 | 11·28 | 14·76 | 17·91 | 11·63 | 7·54 | 14·55 | 10·62 | 15·88 | 14·41 | 8·23 |

## ILLUSTRATION STATIONS IN SASKATCHEWAN

During the past year, illustration work has been carried on at twelve centres in Saskatchewan. Three additional stations were selected during the summer and will be in operation in 1922. New lines of work have been added to the regular rotation work. These include illustration test plots with corn, sunflowers, alfalfa, sweet clover, wheat and oats.

In making up this report for the province, the cost of production is based on the undermentioned lines. The yields of corn, sunflowers and hay are estimated in all reports.

In determining *standard cost,* all Illustration Stations in the province are figured at the same cost; in this way the cost of production is comparative, one station with the other. *Actual cost* is based on the prevailing price of labour, value of land, etc., at each Station.

| | Standard Cost | Actual Cost |
|---|---|---|
| Rent of land, per acre | $2 00 | Based on value of land at 6% interest. |
| Use of machinery, per acre | 0 75 | $0 75 |
| Manual labour, per hour | 0 30 | Based on price prevalent in the district. |
| Horse labour, per hour | 0 10 | |
| Threshing— | | |
| Wheat, per bushel | 0 07 | |
| Oats, per bushel | 0 04 | |
| Cost of Seed— | | |
| Oats, Banner, per bushel | 1 00 | 1 05 |
| Oats, Gold Rain, per bushel | 1 00 | 1 05 |
| Oats, Victory, per bushel | 1 00 | 1 87 |
| Wheat, Kubanka, per bushel | 1 50 | 1 98 |
| West Rye Grass, per pound | 0 17 | 0 17 |
| Corn, N.W. Dent, per bushel | 3 00 | 3 00 |
| Wheat, Marquis, per bushel | 1 50 | 2 31 |
| Alfalfa, Grimm, per pound | 0 75 | 0 75 |
| Clover, white sweet | 0 14 | 0 14 |
| Sunflowers, per pound | 0 09 | 0 09 |

AVONLEA.—*Operator, J. W. Miller.*

This is the first year that the station has been in operation. The land selected was summer-fallowed in preparation for illustration work in 1922.

The standard cost of summer-fallow was $6.45, and the actual cost $6.89 per acre.

DAVIDSON.—*Operator, Reuben Lloyd.*

The spring was very backward in this district, and seeding did not start until May 9.

The moisture supply was adequate, but at first germination was slow. The June rains brought the crops along well, but later in July it turned dry and hot, and all crops suffered. The resulting yields of both grain and hay crops were low. The quality of the grain was only fair, owing to the heavy rains, which caused sprouting in the stook. The rainfall from May 21 to December 30, 1921, was 14·35 inches.

The following table gives the results of the season's work:—

| | Yield per Acre. | Days maturing. | Standard Cost. | Actual Cost. |
|---|---|---|---|---|
| *Three-year rotation with wheat—* | | | | |
| Summer-fallow | | | $4.43 per acre. | $5.54 per acre. |
| Wheat, Marquis, on fallow | 12 bush. | 108 | .88 bush. | 1.25 per bush. |
| Wheat, Marquis, after wheat | 5 bush. | 106 | 1.58 per bush. | 2.16 per bush. |
| *Five-year rotation—* | | | | |
| Summer-fallow | | | 4.57 per acre. | 5.69 per acre. |
| Wheat, Marquis, on fallow | 7⅚ bush. | 107 | 1.34 per bush. | 1.88 per bush. |
| Oats, Banner, seeded with rye grass | 38⅗ bush. | 102 | .28 per bush. | .37 per bush. |
| Hay | A failure. | | | |
| Hay, substituted by wheat this year | 10⅕ bush. | 109 | ·90 per bush. | 1.26 per bush. |
| *Demonstration test plots—* | | | | |
| Alfalfa (newly seeded) | | | 16.34 per acre. | 19.69 per acre. |
| Corn | 2 tons. | 97 | 11.83 per ton. | 14.60 per ton. |
| Sunflowers | 3 tons. | 97 | 4.15 per ton. | 5.07 per ton. |
| Oats, Gold Rain | 53 bush. | 101 | .25 per bush. | .34 per bush. |

HERBERT.—*Operator, Milton Holmes.*

The spring season opened up later than usual in this district. The first grain was sown on April 26. Wheat was seeded at the rate of 1¼ bushels and oats at 2 bushels per acre, on summer-fallow. On land where wheat followed wheat, the rate of seeding was 1 bushel per acre, and where oats followed oats, 1¾ bushels. Crops made a good start in the spring because of the fair supply of moisture. The rainfall during the growing season was light, only 3·57 inches for the three months—May, June and July. The weather became quite hot in July, thus growth was checked and crops ripened too quickly.

Harvesting of both wheat and oats commenced on August 6. Grain crops were light and gave lower than average yields. Sweet clover seeded in 1920, gave two cuttings of hay and yielded two tons per acre.

The following table gives the results of the season's work:—

| | Yield per Acre. | Days maturing. | Standard Cost. | Actual Cost. |
|---|---|---|---|---|
| *Three-year rotation with wheat—* | | | | |
| Summer-fallow | | | $7.98 per acre. | $8.44 per acre. |
| Wheat on fallow | 14⅕ bush. | 108 | .92 per bush. | 1.33 per bush. |
| Wheat after wheat | 8 bush. | 102 | 1.61 per bush. | 2.05 per bush. |
| *Four-year rotation—* | | | | |
| Summer-fallow | | | 8.94 per acre. | 9.42 per acre. |
| Wheat on fallow seeded with rye grass | 11⅘ bush. | 106 | 1·03 per bush. | 1.48 per bush. |
| Western rye grass hay | 1 ton. | | 9.55 per ton. | 11.45 per ton. |
| Western rye grass hay | ⅗ ton. | | 12.13 per ton. | 12.87 per ton. |
| *Three-year rotation with oats—* | | | | |
| Summer-fallow | | | 7.96 per acre. | 8.42 per acre. |
| Oats on fallow, green feed | 1⅗ ton. | 98 | 8.30 per ton. | 10·44 per ton. |
| Oats after oats, green feed | 1 ton. | 95 | 12.99 per ton. | 15.00 per ton. |
| *Demonstration test plots—* | | | | |
| Alfalfa, newly seeded | | | 22.32 per acre. | 27.39 per acre. |
| Sweet clover | 2 tons. | | 4.78 per ton. | 5.73 per ton. |
| Peas, shelled because of rains | Failure. | | | |
| Corn | 1 1/11 ton. | 100 | 12.53 per ton. | 13.04 per ton. |
| Wheat, Kubanka | 6⅔ bush. | 103 | 2.16 per bush. | 2.65 per bush. |
| Wheat, Ruby | 4⅗ bush. | 95 | 3.03 per bush. | 3.76 per bush. |
| Oats, Victory, green feed | ½ ton. | 98 | 29.98 per ton. | 37.72 per ton. |
| Oats, Gold Rain, green feed | ½ ton. | 98 | 21.00 per ton. | 24.92 per ton. |
| Barley seeded with Brome grass | 7 bush. | 93 | 1.87 per bush. | 2.25 per bush. |

Three varieties of wheat were grown on this station, namely: Ruby, Marquis, and Kubanka. From this year's observations, it was found that Ruby ripened the earliest, but gave the lowest yield. Kubanka did not come up to expectations in yield. It produced the longest straw and appeared to suffer the least from drought. Until further experiments have proven otherwise, Marquis will be the standard variety for the district.

Lloydminster.—*Operator, Hugh Hill.*

The spring was later than usual in this district. Wheat was sown on April 30, at the rate of 1½ bushels per acre. Oats was seeded at the rate of 2 bushels per acre. The season was favourable for growth, with 10·37 inches of rain from April 1 to July 31. The month of June was rather dry with only 1·03 inches of rain, but May and July compensated for this, giving 2·57 and 3·88 inches respectively. The total rainfall for the season from April 1 to November 30 was 14·76 inches. The result was a good crop of both grain and hay.

The first wheat was cut August 23, and oats on the 24. All grain was plump, but was damaged to some extent by sprouting in the stook.

The following table gives the results of the season's work:

| | Yield per Acre. | Days maturing. | Standard Cost. | Actual Cost. |
|---|---|---|---|---|
| *Three-year rotation with wheat—* | | | | |
| Summer-fallow | .............. | .............. | $5.89 per acre. | $6.80 per acre. |
| Wheat, Marquis, after fallow | 32 bush. | 116 | .45 per bush. | .57 per bush. |
| Wheat, Marquis, after wheat | 30 bush. | 115 | .46 per bush. | .58 per bush. |
| *Five-year rotation—* | | | | |
| Summer-fallow | .............. | .............. | 8.86 per acre. | 9.64 per acre. |
| Wheat, Marquis, on fallow | 31 bush. | 117 | .45 per acre. | .57 per acre. |
| Oats seeded with rye grass | 82½ bush. | 98 | .18 per acre. | .22 per acre. |
| Western rye grass hay | 1⅕ ton. | ............ | 4.57 per ton. | 5.36 per ton. |
| Western rye grass hay | 1½ ton. | ............ | 3.77 per ton. | 4.39 per ton. |
| *Demonstration test plots—* | | | | |
| Alfalfa | 1⅖ ton. | ............ | 6.46 per ton. | 7.10 per ton. |
| Sweet clover, newly seeded | .............. | .............. | .................. | |
| Wheat, Kubanka | 27 bush. | 112 | .52 per bush. | .62 per bush. |
| Oats, Victory | 81 bush. | 104 | .19 per bush. | .26 per bush. |

*Curing Alfalfa.*—In curing alfalfa, one must bear in mind that the leaves are the most valuable part of the plant for feed. The method followed on this station and found satisfactory for the district, was to do most of the curing in the coil. The crop was cut and left in the swath for a short time, then coiled. When the crop is not too heavy, it may be cut in the morning, raked up and put into small coils in the afternoon. After it has cured sufficiently, the coils should be turned over and the bottom part exposed to the air for a short time before hauling in.

Meota.—*Operator, Walter Tait.*

The spring was backward, and there was no seeding done on the station until April 29. Wheat was seeded at the rate of 1¼ bushels per acre and oats at 2 bushels except when seeding down Western rye grass, then the rate of seeding was 1 bushel per acre. This lighter seeding was to give the rye grass a chance to develop and to prevent its being crowded out by the oat plants.

There was a good supply of moisture during the growing season and all crops made excellent growth. When the wheat was in the shot blade a hail storm injured it slightly, but it recovered well.

Hay was cut on July 18 and gave a good yield. The first wheat was harvested August 12 and oats August 25. The heavy rains after harvest damaged the grain to some extent. However, an excellent yield was obtained.

The following table gives the results of the season's work:—

| | Yield per Acre. | Days maturing. | Standard Cost. | Actual Cost. |
|---|---|---|---|---|
| *Three-year rotation with wheat—* | | | | |
| Summer-fallow | | | $7.23 per acre. | $9.63 per acre. |
| Wheat, Marquis on fallow | 34½ bush. | 106 | .42 per bush. | .63 per bush. |
| Wheat, Marquis, after wheat | 32 bush. | 105 | .44 per bush. | .61 per bush. |
| *Five-year rotation—* | | | | |
| Summer-fallow | | | $6.89 per acre. | $ 9.61 per acre. |
| Wheat, Marquis, on fallow | 38 bush. | 112 | .39 per bush. | .58 per bush. |
| Oats, Banner, seeded with rye grass, green feed | 1¼ tons. | | 7.42 per ton. | 10.18 per ton. |
| Hay, Western rye grass, for seed | 252 lbs. | | .31 per lb. | .37 per lb. |
| Hay, Western rye grass | 2½ tons. | | 3.42 per ton. | 4.09 per ton. |
| *Three-year rotation with oats—* | | | | |
| Summer-fallow | | | 7.27 per acre. | 9.87 per acre. |
| Oats, Banner, on fallow | 94 bush. | 100 | .17 per bush. | .26 per bush. |
| Oats, Banner, after oats | 66 bush. | 89 | .22 per bush. | .30 per bush. |
| *Demonstration test plots—* | | | | |
| Corn | 5 tons. | 120 | 3.39 per ton. | 4.60 per ton. |
| Sunflowers | 7½ tons. | 120 | 2.16 per ton. | 2·92 per ton. |
| Alfalfa, seeded May 23 | | | 14.80 per acre. | 22.34 per acre. |
| Sweet clover, seeded May 24 | 1⅕ tons. | | 8.80 per ton. | 13.43 per ton. |
| Oats, Victory | 83 bush. | 102 | .19 per bush. | .29 per bush. |
| Oats, Gold Rain | 86 bush. | 99 | .18 per bush. | ·27 per bush. |
| Wheat, Kubanka | 38½ bush. | 108 | .39 per bush. | .56 per bush. |

On the Illustration Station, two acres of corn and three acres of sunflowers were grown for ensilage purposes this year. They were run through the cut box and put into a pit silo which Mr. Tait had built during the summer. The ensilage is being fed to the cattle this winter, with excellent results. As a comparison of the two crops, the yield of the corn was five tons per acre, sunflowers seven and one-half tons per acre. The cost of producing the corn was $4.60 per ton, the sunflowers $2.92. The sunflowers not only yielded more heavily but withstood the early fall frosts much better than the corn.

Sunflowers.

Ogema.—*Operator, T. E. Gamble.*

The spring was late in opening. The first seeding was done on April 28. Wheat was seeded at the rate of 1¼ bushels and oats at 2 bushels per acre.

There was sufficient moisture in the soil to bring about a favourable germination, Extremely high winds blew for a few days, causing the soil to drift to the extent that a portion of two wheat fields had to be reseeded. Throughout the growing season there were frequent showers and all crops made excellent growth. Some rust damage was noticeable, but more so on the low-lying land and late seeded grain. Harvesting of wheat commenced on August 13, and the latest oats were cut on August 19. The continued rains while the grain was in the stook discoloured the seed and caused some of it to germinate, thus lowering the grade.

This is the first year this station has been in operation, and it will be noted that all fields in the three-year rotation were seeded with wheat and oats. These fields were all summer-fallowed in 1920, hence were all seeded this spring. The regular three-year rotation, including a summer-fallow, will thus be developed, without losing a year's crop.

The following table gives the results of the season's work:—

| | Yield per Acre. | Days maturing. | Standard Cost. | Actual Cost. |
|---|---|---|---|---|
| *Three-year rotation with wheat—* | | | | |
| Oats on fallow | 76 bush. | 95 | $0.18 per bush. | $0.28 per bush. |
| Wheat, Marquis, on fallow | 25 bush. | 107 | .56 per bush. | .80 per bush. |
| Wheat, Kubanka, on fallow | 30 bush. | 112 | .47 per bush. | .69 per bush. |
| *Four-year rotation—* | | | | |
| Summer-fallow | .............. | .............. | 5.87 per acre. | 6.48 per acre. |
| Wheat, Marquis, seeded with rye grass. | 30 bush. | 99 | .47 per bush. | .68 per bush. |
| Hay, Western rye grass, newly seeded | .............. | .............. | 9.40 per acre. | 10.13 per acre. |
| Hay, substituted by wheat this year | 29 bush. | 99 | .46 per bush. | .67 per bush. |
| *There-year rotation with oats—* | | | | |
| Oats on fallow for feed | 2⅘ tons. | .............. | 4.83 per ton. | 5.65 per ton. |
| Oats, Banner, on fallow | 87 bush. | 94 | .18 per bush. | .27 per bush. |
| Oats, Gold Rain, on fallow | 80 bush. | 88 | .18 per bush. | .28 per bush. |

Kubanka wheat yielded very well at this station. It will be interesting to note how it compared with Marquis on some of the other stations. Both of these varieties were grown this year on the Illustration Stations at the following points: Herbert, Avonlea, Ogema, Radville, in the southern part of the province, and at Meota and Lloydminster in the northern part. The following are the yields and days maturing for Kubanka and Marquis:—

| | Average yield Bushels | Average number days maturing |
|---|---|---|
| *For the South—* | | |
| Kubanka | 17 | 107 |
| Marquis | 18 | 104 |
| *For the North—* | | |
| Kubanka | 32 | 108 |
| Marquis | 34 | 106 |

Pambrum.—*Operator, H. W. Appelgren.*

The seeding of wheat started on April 25, at the rate of 1¾ bushels per acre, except in the two-year rotation, where wheat followed corn, here 1¼ bushels per acre was seeded. The rate of seeding oats was 2 bushels per acre. In this district, crops were fairly well supplied with moisture as 2·90 inches rain fell during May, 2·66 inches in June, and 2.97 inches in July, with a total of 11.63 inches from April 1, to September 30, inclusive.

Harvesting of wheat commenced on August 15, and oats on September 2. All grain crops yielded well, and produced good plump grain, particularly the wheat. Some damage was caused from the heavy rains during the harvest, which lowered the grade.

The following table gives the results of the season's work:—

| | Yield per Acre. | Days maturing. | Standard Cost. | Actual Cost. |
|---|---|---|---|---|
| *Three-year rotation with wheat—* | | | | |
| Summer-fallow | ............... | ............ | $6.67 per acre. | $7.22 per acre. |
| Wheat, Marquis, after fallow | 24 bush. | 117 | .56 per bush. | .81 per bush. |
| Wheat, Marquis, after wheat | 16 bush. | 116 | 1.39 per bush. | 1.65 per bush. |
| *Two-year rotation—* | | | | |
| Corn and sunflowers—Corn | 1 1/12 ton. | 86 | 10.10 per ton. | 10.74 per ton. |
| Sunflowers | 1 1/40 ton. | 82 | 10.64 per ton. | 11.39 per ton. |
| Wheat after corn and sunflowers | 13⅕ bush. | 108 | .61 per bush. | .77 per bush. |
| *Three-year rotation—* | | | | |
| Summer-fallow | ............... | ............ | 6.67 per acre. | 7.22 per acre. |
| Wheat, Marquis, seeded with rye grass. | 33 bush. | 116 | ·44 per bush. | .64 per bush. |
| Western rye grass | 1⅕ ton. | ............ | 5.05 per ton. | 5.51 per ton. |
| *Two-year rotation with oats—* | | | | |
| Summer-fallow | ............... | ............ | 6.67 per acre. | 7.22 per acre. |
| Oats, Banner, on fallow | 58⅘ bush. | 104 | .27 per bush. | .40 per bush. |
| *Demonstration test plots—* | | | | |
| Wheat, Ruby | 19 bush. | 101 | .61 per bush. | .82 per bush. |
| Oats, Gold Rain | 25 bush. | 104 | .47 per bush. | .55 per bush. |

At this station two acres of Giant Russian sunflowers were grown this year. They were sown with the grain drill in rows, three feet apart, and at the rate of 12 pounds per acre. The crop was not heavy, but was cut early in September. While sunflowers will stand more frost than corn, they should be cut before heavy frost. Present information indicates that when cut for ensilage, they should be left until the seeds are in the milk stage. The most satisfactory way to cut sunflowers is with the corn binder.

RADVILLE.—*Operator, Ernest Noble.*

Seeding commenced at this station on April 19. Wheat was sown at the rate of 1¼ bushels on fallow and 1⅛ bushels per acre on land where wheat followed wheat. Oats in the five-year rotation, were seeded at the rate of 2 bushels per acre, along with 14 pounds of Western rye grass. There was sufficient moisture from the spring snows to start the crops growing. The rainfall during May amounted to 1.68 inches. In June there were frequent rains, thus all crops made excellent growth. July also was moist, with 3.01 inches of rain. The total rainfall recorded from March 1, to October 31 amounted to 14.55 inches.

Wheat harvest started the first week in August, and oats on the 22nd. All crops gave a good yield, with the exception of wheat when grown on land that had been wheat the previous year. This field was seeded late, and rusted badly. The earlier sown wheat was not damaged to any extent by the rust.

The following table give the results of the season's work:—

| | Yield per Acre. | Days maturing. | Standard Cost. | Actual Cost. |
|---|---|---|---|---|
| *Three-year rotation with wheat—* | | | | |
| Summer-fallow | | | $7.47 per acre. | $7.57 per acre. |
| Wheat, Marquis, on fallow | 20 bush. | 103 | .64 per bush. | .85 per bush. |
| Wheat, Marquis, after wheat | 4 bush. | 83 | 2.67 per bush. | 3.17 per bush. |
| *Five-year rotation—* | | | | |
| Summer-fallow | | | 6.34 per acre. | 6.44 per acre. |
| Wheat, Marquis, on fallow | 25 bush. | 104 | .52 per bush. | .70 per bush. |
| Oats, Banner, seeded with rye grass | 50 bush. | 83 | .24 per bush. | .31 per bush. |
| Western rye grass hay | 1 ton. | | 6.68 per ton. | 6.78 per ton. |
| Western rye grass hay | 1 ton. | | 4.84 per ton. | 4.94 per ton. |
| *Demonstration test Plots—* | | | | |
| Sweet clover, newly seeded | | | | |
| Wheat, Kubanka | 13 bush. | 96 | .88 per bush. | 1.12 per bush. |
| Oats, Gold Rain | 45 bush. | 86 | .28 per bush. | .35 per bush. |

The illustration test plot of sweet clover was seeded on June 13 on summer-fallowed land. Sweet clover, at the rate of 15 pounds per acre, was sown, along with 3 pecks of barley per acre.

An illustration is also being made with white sweet clover on the farm owned and operated by Mr. F. B. Moffatt, of Yeoman, Sask. The seed was sown with spring wheat, at the rate of 10 pounds per acre. When inspected by the chief supervisor, on August 15, the sweet clover had made a growth of 18 inches in height, and a root growth of from 16 to 18 inches in depth. The soil in this section is typical of the burnt-out lands. The success of this crop will be watched with much interest on account of its drought resistance, and its strong root growth in a hard subsoil.

Ploughing and mulching the summer-fallow on the farm of Mr. Hugh Hill.

SHAUNAVON.—*Operator, Neil McLean.*

Seeding commenced on this station, May 4. The rate of seeding on summer-fallow was 1½ bushels and where wheat followed wheat, 1 bushel per acre. Oats were seeded at the rate of 2 bushels per acre. Due to an oversight at threshing time, the yields from the different fields were not accurately ascertained. Hence, the cost of production is not recorded.

TUGASKE—*Operator, Robert Wilson*

The spring opened the latter part of April and the seeding of wheat started on May 4. Wheat was seeded on fallow at the rate of 1¼ bushels and on land where wheat followed wheat at 1 bushel per acre. Oats were seeded at the rate of 2 bushels per acre in the five-year rotation, in addition 14 pounds Western rye grass was sown per acre.

In the early part of the season, there was a good supply of moisture. During the month of May 2·68 inches of rain fell; in June, 1·60 inches; and during July, 1·89 inches. The latter month was also quite hot. Harvesting of early wheat was started on August 1, and the last oats were cut August 26. The total rainfall recorded from April 1 to October 31 was 15·88 inches.

The following table gives the results of the season's work:—

| | Yield per Acre. | Days maturing | Standard Cost. | Actual Cost. |
|---|---|---|---|---|
| *Three-year rotation with wheat—* | | | | |
| Summer-fallow | | | $6.98 per acre. | $8.30 per acre. |
| Wheat, Marquis, on fallow | 20⅕ bush. | 104 | .58 per bush. | .88 per bush. |
| Wheat, Marquis, after wheat | 15⅘ bush. | 97 | .70 per bush. | .98 per bush. |
| *Five-year rotation—* | | | | |
| Summer-fallow | | | 8.07 per acre. | 9.44 per acre. |
| Wheat, Marquis, on fallow | 16⅘ bush. | 100 | .69 per acre. | 1.04 per acre. |
| Oats, Banner, seeded with rye grass | 36⅕ bush. | 88 | .42 per acre. | .49 per acre. |
| Hay, Western rye grass | 1⅗ ton. | | 4.27 per ton. | 5.19 per ton. |
| Hay, Western rye grass | 2 tons. | | 3.46 per ton. | 4.11 per ton. |
| *Two-year rotation—* | | | | |
| Corn (2½ acres) | 10⅙ tons. | 93 | .88 per ton. | 1.12 per ton. |
| Wheat, Marquis, (2½ acres) | 16 bush. | 97 | .55 per bush. | .77 per bush. |
| *Demonstration test plots—* | | | | |
| Alfalfa hay | ⅘ ton. | | 21.25 per ton. | 25.94 per ton. |
| Wheat, Ruby | 8 bush. | 88 | 1.32 per bush. | 1.88 per bush. |
| Oats, Victory, (green feed) | ⅘ ton. | | 12.72 per ton. | 18.02 per ton. |

From the above table it will be noted that the cheapest wheat this year was produced on the two-year rotation, with corn. This rotation does away with the summer-fallow. On this particular five acres of land, 1920 corn was planted on spring ploughed land and wheat on similar adjoining land. In 1921, wheat was sown on the corn stubble land, and Northwestern Dent corn was sown on the wheat stubble land at the rate of 22 pounds per acre; this ordinarily would have been summer-fallow. The cost of producing wheat after corn was 77 cents per bushel, after fallow 88 cents, and after wheat 98 cents. The future performance of this rotation should be watched.

WEYBURN—*Operator, E. Meredith*

The spring was later than usual in this district. The first seeding was done on May 7. On summer-fallow, wheat was seeded at the rate of 1½ bushels and on land where wheat followed wheat, 1¼ bushels per acre. The rate of seeding oats was 2 bushels per acre. There was an adequate supply of moisture throughout the season, heavier than the average year. The rainfall for June was 4·54 inches, and from April to July, inclusive, 10·69 inches. All crops made excellent growth and looked very promising. After heading out, rust appeared and the spores developed rapidly Serious damage was done to both wheat and oats, particularly the wheat. This resulted in a low yield of shrunken wheat being harvested. Oats, however, gave a fair crop.

Harvest was started on August 8, and cutting was completed on August 22. The grain was further damaged by heavy rains while in the stook. It was remarkable, however, that in spite of all adverse conditions, Marquis wheat came through and made a fair sample.

The following table gives the results of the season's work:—

| | Yield per Acre. | Days maturing. | Standard Cost. | Actual Cost. |
|---|---|---|---|---|
| *Three-year rotation with wheat—* | | | | |
| Summer-fallow | | | $5.76 per acre. | $6.83 per acre. |
| Wheat, Marquis, on fallow | 15 bush. | 107 | .76 per bush. | 1.35 per bush. |
| Wheat, Marquis, after wheat | 14 bush. | 101 | .70 per bush. | 1.20 per bush. |
| *Five-year rotation—* | | | | |
| Summer-fallow | | | 4.11 per acre. | 5.20 per acre. |
| Wheat, Marquis, on fallow | 18 bush. | 99 | .65 per bush. | 1.18 per bush. |
| Oats, Victory, seeded with rye grass | 40 bush. | 96 | .27 per bush. | .58 per bush. |
| Western rye failed, fallow 1921 | | | 4.11 per acre. | 5.20 per acre. |
| Western rye failed, fallow 1921 | | | 4.11 per acre. | 5.20 per acre. |
| *Demonstration test plots—* | | | | |
| Oats, Banner | 23⅗ bush. | 98 | .45 per bush. | .76 per bush. |
| Wheat, Ruby | 10 bush. | 86 | 1.01 per bush. | 1.62 per bush. |

At this station, wheat is grown in the ordinary three-year rotation: First year, fallow; second year, wheat; third year, wheat. This introduces a fallow every three years. It has been found from the experiences of the oldest farmers that, as a rule for this district, a summer-fallow is required this often, when straight grain growing is the method followed. The average yield for the past five years is as follows: wheat on summer-fallow, 17 bushels, 6 pounds per acre; wheat after wheat, 14 bushels, 18 pounds.

ZEALANDIA—*Operator, W. M. Roberts*

Spring opened late in this district. It was the second week in May before the wheat was sown. Wheat was seeded at the rate of 1½ bushels and oats at 2 bushels per acre. There was a good supply of moisture and conditions were favourable for growth. Throughout the growing season, however, growth was somewhat retarded because of the hot weather during July.

Harvesting of wheat was started August 18, and the last oats were cut September 1. Yields of both hay and grain were fair, but not so good as at first promised. The quality of the grain was affected by the heavy rains during harvest, which caused some sprouting.

The rainfall recorded from April to September, inclusive, was 8·23 inches.

The following table gives the results of the season's work:—

| | Yield per Acre. | Days maturing. | Standard Cost | Actual Cost. |
|---|---|---|---|---|
| *Three-year rotation with wheat—* | | | | |
| Summer-fallow | | | | |
| Wheat, Marquis, on fallow | 19 bush. | 102 | $0.65 per bush. | $0.97 per bush. |
| Wheat, Marquis, after wheat | 21 bush. | 102 | .60 per bush. | .90 per bush. |
| *Five-year rotation—* | | | | |
| Summer-fallow | | | 8.54 per acre. | 10.06 per acre. |
| Wheat, Marquis, on fallow | 20 bush. | 102 | .62 per bush. | .93 per bush. |
| Oats, seeded with rye grass | 25 bush. | 89 | .46 per bush. | .63 per bush. |
| Western rye grass hay | ⅘ ton. | | 7.52 per ton. | 9.21 per ton. |
| Western rye grass hay | 1 ton. | | 6.65 per ton. | 8.00 per ton. |
| *Demonstration test plots—* | | | | |
| Wheat, Ruby | 11⅕ bush. | 94 | 1.03 per bush. | 1.49 per bush. |
| Oats, Victory | 30 bush. | 94 | .41 per bush. | .66 per bush. |
| Sweet clover, (seeded June 10) | | | 9.03 per acre. | 11.30 per acre. |
| Alfalfa | ¾ ton. | | | |

The rotation with Western rye grass has been carried on for three years, two hay crops have been taken off with an average yield of one ton, one hundred pounds per acre. Next season the sod will be fallowed, and sown to wheat the following year. We shall then be able to compare this crop with one on ordinary fallow. As a hay, Western rye grass is one of the best for this district. It fits well in a rotation, is hardy, and withstands dry conditions well. It is a perennial plant and can be left down for a number of years. From our experience, two years seems to be long enough to leave it in hay, except in sections where there is considerable moisture.

## ILLUSTRATION STATIONS IN QUEBEC

The summer was unusually dry for the province of Quebec, especially the three months—May, June and July—when crops make their greatest growth. This continued dry weather seriously affected the pastures. Hay and grain yielded very light crops. The catch of grasses and clovers did not look at all promising early in the summer but greatly improved during the fall months. A great deal of difficulty was experienced in securing satisfactory stands of root crops. Many fields had to be seeded the second time and others reseeded to peas, oats and vetches, buckwheat or hungarian millet. These crops proved very valuable under these conditions.

Although many crops suffered, corn did exceptionally well, because of the favourable season. On a number of the stations, it matured sufficiently for seed, and in all cases sufficiently to make excellent ensilage. The good corn crop greatly helped out the feed shortage on many farms.

Throughout the past year the division has operated thirty-two Illustration Stations in the province of Quebec. All of these stations have been operated under a definite rotation, usually of a four-year duration, as follows:—

FOUR-YEAR ROTATION.

| — | Field "A" | Field "B" | Field "C" | Field "D" |
|---|---|---|---|---|
| First year.......... | Hoed crops......... | Grain and seeded. Clover 10 lbs., timothy 10 lbs. per acre.............. | Clover, 1st cut hay, 2nd cut seed...... | Hay or pasture. |
| Second year......... | Grain and seeded. Clover 10 lbs., timothy 10 lbs. per acre.............. | Clover, 1st cut hay, 2nd cut seed...... | Hay or pasture...... | ..Hoed crops. |
| Third year.......... | Clover, 1st cut hay, 2nd cut seed...... | Hay or pasture...... | Hoed crops......... | Grain and seeded. Clover 10 lbs. timothy 10 lbs. per acre. |
| Fourth year......... | Hay or pasture...... | Hoed crops......... | Grain and seeded. Clover 10 lbs. timothy 10 lbs. per acre.............. | Clover, 1st cut hay, 2nd cut seed. |

In making up this report, the cost of production is based on the undermentioned prices. The yields of corn, roots and hay are estimated in all reports.

In determining *standard cost*, all Illustration Stations in the province are figured at the same cost. In this way the cost of production is comparative, one station with the other. By *actual cost* is meant the cost of production based on the prevailing cost of labour, rent of land, etc., at each station.

| | Standard Cost | Actual Cost |
|---|---|---|
| Rent of land, per acre | $2 00 | Based on value of land at 6% interest. |
| Use of machinery, per acre | 0 75 | $0 75 |
| Manual labour, per hour | 0 20 | Based on prices prevalent in the district. |
| Horse labour, per hour | 0 10 | |
| Threshing— | | |
| Wheat, per bushel | 0 07 | |
| Oats, per bushel | 0 04 | |
| Cost of Seed— | | |
| Oats, Banner, per bushel | 1 00 | 1 05 |
| Barley, O.A.C., No. 21 | 1 25 | 1 90 |
| Wheat, Marquis, per bushel | 1 50 | 3 20 |
| Vetches, per bushel | 3 60 | 3 60 |
| Rye, per bushel | 2 90 | 2 90 |
| Peas, Arthur, per bushel | 2 50 | 3 00 |
| Corn, Leaming, per bushel | 1 70 | 1 70 |
| " Golden Glow, per bushel | 2 00 | 2 00 |
| " Longfellow, per bushel | 2 75 | 2 75 |
| Timothy, per hundred | 14 50 | 14 50 |
| Clover, red and alsike, per hundred | 32 00 | 32 00 |
| Sweet clover, per hundred | 12 00 | 12 00 |

AUBREY, CHATEAUGUAY COUNTY.—*Operator, Samuel Reddick.*

This is one of the first and longest established stations in Quebec. Since its establishment, a four-year rotation has been followed. The soil is a heavy, stiff clay and has given good results from the heavy seeding of clovers. This season records the first failure with clovers in six years. The crop went into the winter in excellent condition; however, both the newly seeded and the year-old meadows were completely winter-killed. Following this winter injury came drought, which seriously affected hay and grain crops. Corn was the only crop that gave more than an average yield. The following table gives the results of the season's work:—

FOUR-YEAR ROTATION.

| Field. | Yield per Acre. | Standard Cost. | Actual Cost. |
|---|---|---|---|
| "A"—Corn fodder | 13 tons. | $1.48 per ton. | $1.80 per ton. |
| Corn ensilage | " | 1.94 per ton. | 2.26 per ton. |
| "B"—Oats | 38 bush. | .37 per bush. | .49 per bush. |
| "C"—Timothy hay | 1⅕ tons. | 8.58 per ton. | 12.48 per ton. |
| "D"—Timothy hay | 1 ton. | 9.04 per ton. | 13.60 per ton. |
| Timothy seed | 216 lbs. | .05 per lb. | .07 per lb. |

The growing of clover and the practising of after-harvest cultivation have been features on this station. In the rotation the seeding to grasses and clovers follows an inter-tilled crop of corn. The rate of seeding has been 8 pounds red clover, 2 pounds alsike, 10 pounds timothy, along with 2½ bushels of Banner oats as a nurse crop. Strips have been seeded in these same fields, using 5 pounds clover seed per acre, as is quite a common practice, instead of 10 pounds as mentioned above. The results have always been in favour of heavy seeding.

Summarizing the past five years' results, we find that clover failed but once, and then because of winter-killing. During this time, two cuts of clover have been made, the first cut of hay averaged 2 tons per acre at a cost of $7.08 per ton, the second cut was harvested for seed and averaged 115 pounds red clover seed per acre at a cost of 10½ cents per pound. Oats yielded 43½ bushels per acre at a cost of 41 cents per bushel. Corn averaged 12 tons at a cost of $2.83 per ton.

### BASSIN DU LIEVRE, HULL COUNTY.—*Operator, Edward Brady.*

The spring opened up later than usual in this district and remained very dry until the end of June. The soil on this station is a heavy, hard clay and baked very badly because of the continued dry weather. For this soil, the growing of clover and timely cultivation do a great deal towards improving the texture.

Field " A" was seeded on May 10, to Banner oats, along with 8 pounds red clover, 2 pounds alsike and 10 pounds timothy. Although the season was dry, the catch of grass and clover is promising. This is, in no small measure, due to the seed bed preparation this field received.

The following table gives the results of the season's work:—

### FOUR-YEAR ROTATION.

| Field. | Yield per Acre. | Standard Cost. | Actual Cost. |
|---|---|---|---|
| "A"—Oats, Banner, seeded | 32½ bush. | $0.44 per bush. | $0.49 per bush. |
| "B"—Clover hay | 1½ ton. | 6.94 per ton. | 7.93 per ton. |
| "C"—Clover hay | 1 ton. | 10.26 per ton. | 11.75 per ton. |
| "D"—Corn fodder, Leaming | 6½ tons. | 3.95 per ton. | 4.18 per ton. |
| " ensilage " | " | 4.79 per ton. | 5.02 per ton. |
| " turnips " | 12 tons. | 1.73 per ton. | 1.76 per ton. |

In order economically to prepare sod land for hoed or grain crops, the practice of after-harvest cultivation is being followed on the Illustration Stations. By this method, the land is ploughed shallow as soon as the crop is taken off, rolled immediately to firm the sod and hasten decomposition and kept frequently cultivated to keep down all green growth. Before freezing up in the fall, the land is again ploughed in the same direction as before. This fall ploughing should be to the depth of from five to six inches, or deeper, depending on the nature of the soil. By following this practice, weeds are destroyed, the sod becomes decomposed, and a fine, well-pulverized seed bed is assured.

The above cut plainly shows the advantage of fall ploughing clay land. The upper part of this field was ploughed in the fall; the lower portion was spring ploughed. Other soil treatment was similar.

Campbells Bay, Pontiac County.—*Operator, W. J. Hayes and Son.*

This was the first year that this station was in operation. A four-year rotation is being established at this centre. Field " A " was summer ploughed. The practice of after-harvest cultivation was followed in 1920, in preparing this field for a hœd crop of corn. Fields " B " and " C " were fall ploughed and seeded on May 10 and 11, to oats at the rate of 2 bushels per acre, along with 8 pounds red clover, 2 pounds alsike and 10 pounds timothy. Field " D " was seeded to oats alone, on the same date. This field was not seeded to grasses and clovers as it will be in hoed crops next year.

The following table gives the results of the season's work:—

FOUR-YEAR ROTATION.

| Field. | Yield per Acre. | Standard Cost. | Actual Cost. |
|---|---|---|---|
| "A"—Corn fodder, Leaming | 14 tons. | $1.48 per ton. | $1.71 per ton. |
| Corn ensilage, " | 14 tons. | 1.70 per ton. | 1.93 per ton. |
| "B"—Oats, Banner, seeded | 25⅔ bush. | .54 per bush. | .61 per bush. |
| "C"—Oats, Banner, seeded | 19⅓ bush. | .70 per bush. | .79 per bush. |
| "D"—Oats, Banner | 19⅓ bush. | .70 per bush. | .79 per bush. |

It will be noted from the above table that it cost 61 cents to produce oats on field " B," and 79 cents per bushel on field " C." The essential difference between the two fields was that " B " was a year-old sod, and " C " a three or four-year-old sod. Not only did the old sod field give a lower yield of oats, but it produced a decidedly poorer catch of grass and clover. This again demonstrates the difficulty of preparing a satisfactory seed bed from old sod land by simply fall ploughing. To decompose and pulverize an old sod thoroughly the practice of after-harvest cultivation has been found valuable.

Cap Chat, Gaspe County.—*Operator, C. F. Roy.*

During the past year, a four-year rotation has been established on this station. Seeding commenced on May 18. Field " D " was seeded to Banner oats at the rate of 2½ bushels per acre, along with 8 pounds red clover, 2 pounds alsike and 10 pounds timothy. The following table gives the results of the season's work:—

FOUR-YEAR ROTATION.

| Field. | Yield per Acre. | Standard Cost. | Actual Cost. |
|---|---|---|---|
| "A"—Clover hay | 2 tons. | $3.18 per ton. | $5.03 per ton. |
| "B"—Timothy hay | 2 tons | 4.32 per ton. | 6.78 per ton. |
| "C"—Mixed crop | 2 tons. | 5.74 per ton. | 9.88 per ton. |
| "D"—Oats, Banner, seeded | 23 bush. | .41 per bush. | .71 per bush. |

Mixed crops are very valuable in districts similar to this, where corn does not do well and where the whole area intended for hoed crops cannot be handled in turnips and mangels. For mixed crops, the land should be summer-ploughed as soon as the hay crop is taken off, kept frequently cultivated, and ploughed again in the fall as deeply as the humus in the soil will allow, the same as for a hoed crop. When seeding field " C " to mixed crops, 3½ bushels of seed were sown to the acre. The mixture used was ½ bushel peas, 1½ bushel barley and 2 bushels oats. When cut at the proper stage, these crops furnish a nutritious hay. As soon as the mixed crop is taken off, the land should be thoroughly disced, kept frequently cultivated and ploughed in the fall. By this practice, the land is well pulverized for the reception of the grasses and clovers the following spring.

WEEDON, WOLFE COUNTY.—*Operator, Joseph Allard.*

This is the second year that illustration work has been carried on at this centre. The soil is of a sandy loam nature, and responds well to the heavy application of clover seed.

Seeding commenced on this station on May 8. The rate of seeding field "A" was 2½ bushels Banner oats, and 8 pounds red clover, 2 pounds alsike, and 10 pounds timothy per acre. Harvesting commenced on August 8.

The following table gives the results of the season's work:—

FOUR-YEAR ROTATION.

| Field. | Yield per Acre. | Standard Cost. | Actual Cost. |
|---|---|---|---|
| "A"—Oats, Banner, seeded | 57 bush. | $0.27 per bush. | $0.40 per bush. |
| "B"—Corn, Leaming | 18 tons. | 3.48 per ton. | 4.00 per ton. |
| Mangels, Yellow Intermediate | 5 tons. | 12.41 per ton. | 13.69 per ton. |
| Turnips, Jumbo | 36 tons. | 2.63 per ton. | 3.08 per ton. |
| "C"—Timothy hay | 1,500 lbs. | 6.24 per ton. | 7.16 per ton. |
| "D"—Clover hay, 1st cut | 1,300 lbs. | 7.80 per ton. | 8.10 per ton. |
| Clover seed, 2nd cut | 106 lbs. | .05 per lb. | .08 per lb. |

The cost of producing ensilage corn and clover seed should be of special interest to the farmers in this district. Up to the present time, neither of these crops has received sufficient attention. To procure a crop of red clover seed from the second cut, it is necessary for the first to be taken off early. Field "D" was cut on June 14 and all further growth allowed to go to seed. Threshing was done with the ordinary grain thresher by making slight adjustments to the front and back of the cylinder.

ISLE VERTE, TEMISCOUATA COUNTY.—*Operator, Alfred Michaud.*

This is a new station and the work carried on this season was preparatory to a four-year rotation. The soil is of a very light, sandy nature, almost void of humus, and suffered a great deal from drought.

The following table gives the results of the season's work:—

FOUR-YEAR ROTATION.

| Field. | Yield per Acre. | Standard Cost. | Actual Cost. |
|---|---|---|---|
| "A"—Oats Banner | Dried out | | |
| "B"—Potatoes, Green Mountain | 271 bush. | $0.17 per bush. | $0.19 per bush. |
| Turnips, Jumbo | 12 tons. | 3.27 per ton. | 3.28 per ton. |
| Corn, Longfellow | 12 tons. | 3.59 per ton. | 3.77 per ton. |
| "C"—Clover hay | 600 lbs. | 21.60 per ton. | 23.80 per ton. |
| "D"—Clover hay | 800 lbs. | 15.80 per ton. | 17.60 per ton. |

It will be noted from the above table that the season was so dry that the oats sown on field "A" completely dried out. To get this field into crop as quickly as possible, the land was ploughed early in August, and ground limestone was applied. The field was then seeded to fall rye at the rate of 1½ bushels per acre, along with 6 pounds red clover, 4 pounds alsike and 10 pounds timothy. Both the rye and the grass, and clover made satisfactory fall growth.

JONQUIERE, CHICOUTIMI COUNTY.—*Operator, Emile Brassard.*

This is the first year that illustration work has been carried on in this district. Three fields only were worked during the spring and summer. Field "D," however, was ploughed up early in the summer and kept cultivated in preparation for hoed crop in 1922, thus, the work throughout the season has been preparatory to a four-year rotation.

The following table gives the results of the season's work:—

FOUR-YEAR ROTATION.

| Field. | Yield per Acre. | Standard Cost. | Actual Cost. |
|---|---|---|---|
| "A"—Oats, Banner, seeded | 41 bush. | $0.29 per bush. | $0.57 per bush. |
| "B"—Oats, Banner | 41 bush. | .30 per bush. | .58 per bush. |
| "C"—Mixed crop, followed by summer cultivation | 2 tons... | 6.90 per ton. | 11.43 per ton. |
| "D"—Old meadow | | | |

It will be noted that when mixed crops are grown in the hoed crop section of the rotation, the land should be disced up as soon as the crop is taken off. This discing and cultivating is to supplement the cultivation that such crops as corn and turnips receive during the growing season. Following this and before freezing up, the land should be ploughed and well set up to the action of the frost. Field "C" was handled in this way so will be in good condition for seeding to grasses and clovers in the spring.

LACHUTE, ARGENTEUIL COUNTY.—*Operator, S. E. Smith.*

Early spring conditions were very favourable for growth in this district. The season opened up fairly early, allowing the first seeding to be made on field "D," April 27. This field was seeded to Banner oats at the rate of 2½ bushels per acre, along with 8 pounds red clover, 2 pounds alsike and 10 pounds timothy. The oats gave a satisfactory germination and early growth, but suffered later from the continued drought.

Field "B" was pastured this summer, ploughed up on August 22, and kept cultivated frequently in preparation for hoed crop in 1922.

The following table gives the results of the season's work:—

FOUR-YEAR ROTATION.

| Field. | Yield per Acre. | Standard Cost. | Actual Cost. |
|---|---|---|---|
| "A"—Corn, Leaming, Ensilage | 14½ tons. | $1.68 per ton. | $2.26 per ton. |
| "B"—Pasture | | | |
| "C"—Clover hay, 1st cut | 1 ton. | 4.06 per ton. | 5.98 per ton. |
| Clover seed, 2nd cut | 135 lbs. | .10 per lb. | .12 per lb. |
| "D"—Oats, Banner, seeded | 16 bush. | .73 per bush. | .98 per bush. |

This Station has been in operation for four years. During this time a number of varieties of corn, such as Golden Glow, Wisconsin No. 7, Longfellow and Leaming, have been grown for ensilage purposes. Of these varieties, Leaming was Mr. Smith's choice. This season the whole five-acre field was seeded to this variety and again it gave a good tonnage of well-matured silage. Corn was not produced as cheaply at this Station as at some others. This is due, in quite a measure, to the frequent harrowing and cultivating that were necessary to control couch grass. This frequent cultivation, however, did a great deal to control moisture, and to eradicate the couch, and has also been very valuable in preparing a fine seed bed for the grasses and clovers next spring.

### L'Assomption, L'Assomption County.—*Operator, Joseph Papin.*

Crops did very well at this Station with the exception of oats. The soil is extremely variable, ranging from sandy loam to clay loam. Seeding started on May 7. Field "A" was seeded to Banner oats, at the rate of 3 bushels per acre, along with 8 pounds red clover, 2 pounds alsike and 10 pounds timothy. It probably would have been better if the rate of seeding had been 2½ bushels per acre. If seeding is too heavy, there is danger of the clover plants being sheltered too much, and suffering from want of moisture in dry seasons.

The following table gives the results of the season's work:—

#### FOUR-YEAR ROTATION.

| Field. | Yield per Acre. | Standard Cost. | Actual Cost. |
|---|---|---|---|
| "A"—Oats, Banner, seeded | 28 bush. | $0.56 per bush. | $0.76 per bush. |
| "B"—Corn, Leaming | 15 tons. | 1.27 per ton. | 1.77 per ton. |
| Mangels | 45 tons. | 1.65 per ton. | 2.14 per ton. |
| Turnips | 31½ tons. | 2.00 per ton. | 2.46 per ton. |
| "C"—Oats, Banner, seeded | 28 bush. | .53 per bush. | .73 per bush. |
| "D"—Clover hay, 1st cut | 1⅖ tons. | 5.50 per ton. | 7.53 per ton. |
| Clover seed, 2nd cut | 262½ lbs. | .09 per lb. | .11 per lb. |

It is interesting to note the satisfactory crop of hay and clover seed which was harvested on field "D." In this district it is found that when a seed crop is desired, the hay crop must be cut early. This should be done as soon as the second growth starts at the base of the plants. In this case, the first cutting was made on June 16. If cutting is delayed, the mower will cut off the secondary shoots and thus retard growth to such an extent as to make it impossible to get a seed crop. Care also should be taken to harvest the seed crop at the most advantageous time. If cut too early the seed will be immature, and cannot be threshed out; if let go too long, some will be lost by shelling. This 262½ pound crop per acre was cut when the seed shelled out readily from representative heads when rubbed in the palm of the hand.

### Lac a La Tortue, Champlain County.—*Operator, S. T. Lupien.*

Crop conditions were very unfavourable at this Station and throughout the surrounding district, because of drought. The soil is sandy in nature and naturally lacking in humus. The season opened early, allowing seeding to commence on April 27. Oats were seeded at the rate of 2½ bushels per acre along with 8 pounds red clover, 2 pounds alsike and 10 pounds timothy. The weather continued dry until July 12. This continued drought made it necessary to cut the oats for hay. The clover catch was very poor at the time the oats were cut, but greatly improved during the fall months. The hay crop dried out badly and resulted in a complete failure. Mangels failed to germinate so were harrowed up, and the land was seeded to buckwheat on June 29.

The following table gives the results of the season's work:—

FOUR-YEAR ROTATION.

| Field. | Yield per Acre. | Standard Cost. | Actual Cost. |
|---|---|---|---|
| "A"—Oats (cut for hay) | | | |
| "B"—Timothy hay | Dried out | | |
| "C"—Corn, fodder | 14 tons. | $1.95 per ton. | $1.95 per ton. |
| Corn ensilage | 14 " | 2.38 per ton. | 2.38 per ton. |
| Mangels | Dried out | | |
| Turnips | 13 tons | 2.70 per ton. | 2.70 per ton. |
| "D"—Clover | Dried out | | |
| *Demonstration test field—* | | | |
| Potatoes | 146 bush. | .26 per bush. | .26 per bush. |

Although this season's results might not indicate it, the soils on this station have been greatly improved by growing clover and by light surface applications of stable manure. The methods followed in handling this light, sandy soil was to practise fall ploughing and to seed 10 pounds clover, and 10 pounds timothy per acre, along with the nurse crop. The seeder should be followed by the roller to compact the soil and to hasten germination. By then harrowing in a light dressing of manure, the soil was mulched and plant food was made readily available for the young growth. Sandy soils are apt to be sour and can be benefitted greatly by an application of from three to five tons of ground limestone per acre.

LITTLE CASCAPEDIA, BONAVENTURE COUNTY.—*Operator, J. B. Cyr.*

The moisture supply was plentiful in this district, and, on the whole, conditions were quite favourable for growth. The soil on this station is of a sandy loam character, and is quite representative of the district. The heavy seeding of clovers is certainly advantageous under the conditions here. Seeding commenced on May 13. Field " A " was seeded to oats and wheat. Oats were seeded at the rate of 2 bushels, and wheat at 1½ bushels per acre, along with 8 pounds red clover, 2 pounds alsike and 10 pounds timothy.

The following table gives the results of the season's work:—

FOUR-YEAR ROTATION.

| Field. | Yield per Acre. | Standard Cost. | Actual Cost. |
|---|---|---|---|
| "A"—Oats, Banner, seeded | 60 bush. | $0.19 per bush. | $0.22 per bush. |
| Wheat, Huron, seeded | 30 bush. | .62 per bush. | .65 per bush. |
| "B"—Corn, Longfellow | 12 tons. | 5.33 per ton. | 6.07 per ton. |
| Potatoes, Green Mountain | 137 bush. | .48 per bush. | .53 per bush. |
| "C"—Timothy hay | 2 tons | 5.16 per ton. | 5.36 per ton. |
| "D"—Clover Hay | 1¾ ton. | 4.62 per ton. | 4.83 per ton. |

It would certainly be to the advantage of the district if hay fields were cut earlier. It is a common practice throughout the district to allow the hay crop to become too mature before cutting. Meadows are left down too many years without being broken up and reseeded. Weeds are increasing and the hay crop is getting lighter. From the example shown on the Illustration Station, it is hoped very soon to change these conditions. Clover hay should be cut as soon as the second growth appears at the base of the plants. Timothy should be cut as soon as it has passed its first bloom. In standing field crop competitions, Mr. Cyr won four prizes.

MATANE, GASPE COUNTY.—*Operator, Michael Philibert.*

This is the first year that this station has been in operation. The soil is a light sand, very shallow, underlaid with shale, and lacking in humus. The land is being worked into a four-year rotation.

The following table gives the results of the season's work:—

FOUR-YEAR ROTATION.

| Field. | Yield per Acre. | Standard Cost. | Actual Cost. |
|---|---|---|---|
| "A"—Potatoes, Green Mountain | 150 bush. | $0.43 per bush. | $0.48 per bush. |
| "B"—Oats, Banner, seeded | 27 bush. | .40 per bush. | .48 per bush. |
| "C"—Hay, Mixed | 1,500 lbs. | 9.52 per ton. | 11.08 per ton. |
| "D"—Oats, Banner | 35 bush. | .30 per bush. | .38 per bush. |

To get red and alsike clover growing properly on this light, sandy soil, a liberal rate of seeding must be used. The soils are naturally lacking in fertility and can be greatly improved by the fertilizing value of leguminous crops, and a top dressing of stable manure. When seeding down field "B," the amount of seed used was 2½ bushels Banner oats, along with 6 pounds red clover, 4 pounds alsike and 10 pounds timothy per acre.

MONTMAGNY, MONTMAGNY COUNTY.—*Operator, G. F. Fournier.*

Seeding commenced on this station on May 7. Field "A" was seeded with Banner oats at the rate of 3 bushels per acre, along with 8 pounds red clover, 2 pounds alsike and 10 pounds timothy. Crops did very well this season and were produced at a low cost.

The following table gives the results of the season's work:—

FOUR-YEAR ROTATION.

| Field. | Yield per Acre. | Standard Cost. | Actual Cost. |
|---|---|---|---|
| "A"—Oats, Banner, seeded | 63 bush. | $0.21 per bush. | $0.27 per bush. |
| "B"—Turnips, Jumbo | 32 tons. | 1.94 per ton. | 2.23 per ton. |
| Mangels | 26 tons. | 1.93 per ton. | 2.17 per ton. |
| Corn, Longfellow, fodder | 6½ tons. | 7.28 per ton. | 8.13 per ton. |
| "C"—Pasture | | | |
| "D"—Clover hay, 1st cut | 1,500 lbs. | 9.16 per ton. | 13.43 per ton. |
| Clover seed, 2nd cut | 112 lbs. | .15 per lb. | .16 per lb. |

It can be seen from the above table that turnips and corn did very well this season. Corn, however, did not give the desired yield of fodder. Although the cost of production was high, it turned out to be a very profitable crop, as the ears were sold for table use. In districts similar to this, it has been found that root crops can be more economically produced when sown on drills than when sown on the flat. By having the crop on drills, the cultivator works the soil away from the plants, making thinning and pulling easier. The drills should be from 24 to 30 inches apart. Seeding should not commence until a heavy land roller has passed over the drills, flattening them down to about one-third their original height. This compacts the soil and hastens germination.

In the provincial standing clover crop competition, Mr. Fournier took first prize. At the local exhibition, he took twenty-five prizes, eighteen of these were firsts.

PASPEBIAC WEST, BONAVENTURE COUNTY.—*Operator, E. M. Legallais.*

Crops did not suffer from drought in this section, as in many others. The seeding of field "D" commenced on May 18. Part of this field was seeded with oats at the rate of 2½ bushels and the other part with wheat at 1½ bushels per acre, along with 8 pounds red clover, 2 pounds alsike and 10 pounds timothy.

The following table gives the results of the season's work:—

FOUR-YEAR ROTATION.

| Field. | Yield per Acre. | Standard Cost. | Actual Cost. |
|---|---|---|---|
| "A"—Potatoes, Green Mountain | 230 bush. | $0.23 per bush. | $0.23 per bush. |
| Turnips, Jumbo | 22½ tons. | 2.45 per ton. | 2.42 per ton. |
| "B"—Timothy hay | 1¾ ton. | 5.07 per ton. | 5.40 per ton. |
| "C"—Clover hay, 1st cut | 1⅓ ton. | 4.33 per ton. | 4.28 per ton. |
| Clover seed, 2nd cut | 84 lbs. | .07 per lb. | .08 per lb. |
| "D"—Banner oats | 53 bush. | .19 per bush. | .20 per bush. |
| Wheat, Huron | 26 bush. | .49½ per bush. | .49 per bush. |

Since the establishment of this station, four years ago, very good success has been attained in the eradication of weeds, by following the practice of after-harvest cultivation. The land was ploughed shallow as soon as the crop was removed, immediately rolled to firm the sod and hasten decomposition, kept harrowed at regular intervals to keep down all growth, then ploughed again in the fall in the same direction as before and as deeply as the nature of the soil would allow. By this method, weeds are destroyed, the sod becomes decomposed and a good seed bed is prepared for the potato crop, which is a very important one in this section.

It may be noted that by preparing the land in this way, the cost of producing potatoes this year was 23 cents per bushel.

In 1917, work began on this station, oats yielding 31 bushels per acre, and in 1921 oats yielded 53 bushels, or an average yield of 47¾ bushels for the four years. Potatoes, in 1917, yielded 110 bushels per acre; in 1921, 230 bushels or an average of 212 bushels per acre. Hay on the average has increased about 1,200 pounds per acre. The condition of the soil on this station has been much improved.

Mr. Legallais was the winner in the field crop competition, against thirty-five competitors.

PAPINEAUVILLE, LABELLE COUNTY—*Operator, Ovila Clement.*

This is the first year that this station has been in operation. A four-year rotation is being established. The practice of after-harvest cultivation was followed on field "A" in 1920, in preparation for corn and potatoes. By this method, a good clean crop of corn and potatoes was produced, with but nine hours hand work on the one acre potatoes. No hand hoeing was necessary on the corn. Ensilage corn was produced at $1.76 per ton and potatoes at 27 cents per bushel.

Fields "C" and "D" were fall ploughed and seeded on May 7 to oats, at the rate of 2 bushels per acre, along with 8 pounds red clover, 2 pounds alsike and 10 pounds timothy. Field "B" was not seeded to grasses and clovers as it will be in hoed crop next year.

The following table gives the results of the season's work:—

FOUR-YEAR ROTATION.

| Field. | Yield per Acre. | Standard Cost. | Actual Cost. |
|---|---|---|---|
| "A"—Corn, Leaming, Ensilage | 15 tons. | $1.43 per ton. | $1.76 per ton. |
| Potatoes | 185 bush. | .24 per bush. | .27 per bush. |
| "B"—Oats, Banner, seeded | 38 bush. | .43 per bush. | .52 per bush. |
| "C"—Oats, Banner | 38 bush. | .43 per bush. | .52 per bush. |
| "D"—Oats, Banner, seeded | 38 bush. | .43 per bush. | .52 per bush. |

*Sunflower Growing.*—Some interesting information has been gained in growing sunflowers on this farm. For the past two years, this crop has been grown here with very good success. Present information goes to show that they will give even better results than corn, on rather cold, poor, or light sandy soil. Sunflowers, like corn, serve as a cleaning crop, and require the same seed bed preparation. They should be seeded with the grain drill, in rows 36 inches apart, and at the rate of from 10 to 12 pounds per acre. To procure a good quantity and quality of silage, the plants should be about 6 inches apart in the row. While the best time to cut sunflowers for silage has not been definitely decided, tests go to show that they should be cut when in the dough stage. The corn binder is used for cutting this crop. At this farm, sunflowers yielded 24 tons as compared with 15 tons per acre from corn. When cut at the proper stage, cattle take to them very readily. Mr. Clement reports that his cattle do as well on sunflower silage as on corn silage.

At the local seed fair, Mr. Clement took two prizes on Banner oat seed.

PIERREVILLE, YAMASKA COUNTY—*Operator, Simon Traversy.*

This is the second year that this station has been in operation. In this time, the regular four-year rotation has been established. In this rotation the preparation of the land for hoed crop by the practice of after harvest cultivation, has been followed. This method greatly reduces the amount of hand work necessary, lowers the cost of production and effectively prepares the land for the reception of the following crops.

The following table gives the results of the season's work:—

FOUR-YEAR ROTATION.

| Field. | Yield per Acre. | Standard Cost. | Actual Cost. |
|---|---|---|---|
| "A"—Oats, Banner, seeded | 24 bush. | $0.45 per bush. | $0.58 per bush. |
| "B"—Clover hay, 1st cut | 1½ ton. | 5.23 per ton. | 7.35 per ton. |
| Clover seed, 2nd cut | 52 lbs. | .15 per lb. | .21 per lb. |
| "C"—Oats, Banner | 26 bush. | .44 per bush. | .55 per bush. |
| "D"—Corn, Leaming | 10½ tons. | 2.63 per ton. | 2.97 per ton. |
| Mangels | 16 tons. | 2.66 per ton. | 3.09 per ton. |

*Threshing Red Clover*—Seeding commenced at this station on May 14. Field "A" was seeded to oats at the rate of 2 bushels per acre, along with 8 pounds red clover, 2 pounds alsike and 10 pounds timothy. The yield of oat and of clover seed was rather low, due to the dry weather. Although the season was unfavourable, clover seed was produced much more cheaply than seed of the same quality could be bought. Many refrain from growing their own seed because of the belief that special machinery is required to thresh the crop. If cut at the proper time, red clover can be threshed with the ordinary grain thresher, by partially blocking the front and back of the cylinder with a hardwood board. However, when there is a sufficient number of farmers in one district, growing clover for seed, to warrant the purchase of a clover huller, it will be found a paying investment as it will do much better work than the ordinary grain thresher.

At the local exhibition, Mr. Traversy was successful in obtaining eleven prizes.

PLESSISVILLE, MEGANTIC COUNTY—*Operator, Eudore Jutras.*

This is the second year that illustration work has been carried on at this station. The weather was very dry during the early part of the summer; hay crops especially were affected. Seeding started on May 11. The rate of seeding field "A" was 2½ bushels oats, along with 8 pounds red clover, 2 pounds alsike and 10 pounds timothy per acre.

The following table gives the results of the season's work:—

FOUR-YEAR ROTATION.

| Field. | Yield per Acre. | Standard Cost. | Actual Cost. |
|---|---|---|---|
| "A"—Oats, Banner, seeded | 39 bush. | $0.30 per bush. | $0.29 per bush. |
| "B"—Clover hay | 1 ton. | 7.37 per ton. | 6.77 per ton. |
| "C"—Corn, Leaming | 18 tons. | 2.65 per ton. | 2.61 per ton. |
| Turnips | 24½ tons. | 2.54 per ton. | 2.52 per ton. |
| Mangels | 8 tons. | 6.70 per ton. | 6.62 per ton. |
| Potatoes | 300 bush. | .26 per bush. | .26 per bush. |
| "D"—Timothy hay | 1 ton. | 7.83 per ton. | 7.23 per ton. |

*Exterminating Couch Grass.*—It may be noted from the above table that hoed crops did very well this season. A great deal of this success may be attributed to the thorough preparation and cultivation this sod land received. This field originally was badly infested with couch grass. It was ploughed in July, rolled and cultivated frequently. This continued working so completely destroyed the couch and other weeds that hand hoeing was unnecessary, except for thinning mangels and turnips. Manure was applied at the rate of 13 tons per acre, along with 1 ton of commercial fertilizer on the 2½ acres in mangels and turnips.

STANBRIDGE EAST, MISSISSQUOI COUNTY.—*Operator, C. S. Moore.*

This station has now been in operation for six years, and during this time the value of tile drainage has been demonstrated. It will be noted that two four-year rotations have been established, one is tile drained and the other surface drained. By growing the same crops on each rotation, the value of under-drainage has been ascertained. Due to hauling large stones off field "E," for road purposes, this field was not planted in corn and turnips this year, as it should have been.

The following table gives the results of the season's work:—

### FOUR-YEAR ROTATION.

#### ON TILE DRAINED LAND.

| Field. | Yield per Acre. | Standard Cost. | Actual Cost. |
|---|---|---|---|
| "A"—Timothy hay | 1½ tons. | $7.35 per ton. | $8.02 per ton. |
| "B"—Clover hay, 2 cuts | 2 tons. | 5.69 per ton. | 6.19 per ton. |
| "C"—Oats, Banner, seeded | 38 bush. | .36 per bush. | .41 per bush. |
| "D"—Potatoes | 210 bush. | .28 per bush. | .33 per bush. |
| Corn, Longfellow, fodder | 13¾ tons. | 1.89 per ton. | 2.21 per ton. |
| Turnips | 18⅔ tons. | 1.99 per ton. | 2.45 per ton. |
| Mangels | 14 tons. | 3.58 per ton. | 4.71 per ton. |

#### ON UNDRAINED LAND.

| Field. | Yield per Acre. | Standard Cost. | Actual Cost. |
|---|---|---|---|
| "E"—Timothy hay | 1½ tons. | 7.25 per ton. | 7.85 per ton. |
| "F"—Oats, Banner, seeded | 23 bush. | .60 per bush. | .69 per bush. |
| "G"—Clover hay, 2 cuts | 1½ tons. | 6.88 per ton. | 7.30 per ton. |
| "H"—Timothy hay | 1 ton. | 9.63 per ton. | 10.04 per ton. |

Seeding commenced on the tile-drained field on April 27, and the surface-drained field May 19. From the above report, it may be seen that earlier seeding was possible and also that all crops gave higher yields on the tile drained land, although the season was comparatively dry. The good results from tile drainage have not been confined to this year only. For five years, results show an increased yield on the drained land, as follows:—

2½ tons corn per acre.
9.3 bushels oats per acre.
1,440 pounds clover hay per acre.
900 pounds mixed hay.
Tile drain the land, it pays.

At the local exhibition, Mr. Moore won first on meadows. In the provincial standing crop competition, he won first on potatoes and first on oats.

ST. BRIGIDE, IBERVILLE COUNTY.—*Operator, Alphonse Goineau.*

This is the first year that this station has been in operation. The work carried on during the summer was preparatory for the four-year rotation, which is being established. Corn and root crops did very well, and helped to make up for the short hay crop.

The following table gives the results of the season's work:—

### FOUR-YEAR ROTATION.

| Field. | Yield per Acre. | Standard Cost. | Actual Cost. |
|---|---|---|---|
| "A"—Oats | 29 bush. | $0.45 per bush. | $0.53 per bush. |
| "B"—Timothy hay | 1 ton. | 8.97 per ton. | 11.37 per ton. |
| Timothy seed | 153 lbs. | .09 per lb. | .10 per lb. |
| "C"—Corn | 13 tons. | 1.19 per ton. | 1.37 per ton. |
| Turnips | 18½ tons. | 1.63 per ton. | 1.76 per ton. |
| Mangels | 11 tons. | 2.45 per ton. | 2.67 per ton. |
| "D"—Oats | 21 bush. | .59 per bush. | .70 per bush. |

The soil at this station is a heavy clay, and can be greatly improved by tile drainage and the heavy seeding of clovers. Fields “ A ” and “ B ” were seeded on May 10, with 8 pounds red clover, 2 pounds alsike, and 10 pounds timothy, along with 2½ bushels oats per acre.

Mr. Goineau won three prizes at the local fair on crop exhibits.

St. Casimir, Portneuf County.—*Operator, Eloi St. Germain.*

The spring season opened up quite early in this district. Seeding commenced on field “ B ”, May 7. Banner oats was seeded at the rate of 2½ bushels per acre, along with 8 pounds red clover, 2 pounds alsike and 10 pounds timothy. It will be noted that half of field “ A ” was cut twice for hay, the other half was cut on June 17, and left for clover seed.

The following table gives the results of the season's work:—

FOUR-YEAR ROTATION.

| Field. | Yield per Acre. | Standard Cost. | Actual Cost. |
|---|---|---|---|
| “A”—Clover hay, 2 cuts | 3 tons. | $4.50 per ton. | $5.80 per ton. |
| Clover hay, 1st cut | 1¼ ton. | 9.38 per ton. | 12.00 per ton. |
| Clover seed | 96 lbs. | .10 per lb. | .11 per lb. |
| “B”—Oats | 41 bush. | .31 per bush. | .41 per bush. |
| “C”—Turnips | 9½ tons. | 4.44 per ton. | 5.83 per ton. |
| Mangels | 12 tons. | 3.52 per ton. | 3.94 per ton. |
| Corn, Longfellow | 12½ tons. | 1.35 per ton. | 1·70 per ton. |
| “D”—Timothy hay | 1¾ tons. | 5.64 per ton. | 7.52 per ton. |

Although a large percentage of the farmers in this district do not grow mangels or corn, both of these crops have been grown with good success on the Illustration Station.

In growing mangels at this station, the seed bed has been prepared by practising after-harvest cultivation. Fifteen tons of manure has been applied per acre. In the spring, the land was drilled up, making the drills 30 inches apart. The roller was passed over the drills to firm them, and to bring the moisture to the surface. The rate of sowing was 8 pounds of seed per acre. Thinning began when the plants were about two inches high, leaving a ten inch space between the plants. Cultivation started early to loosen the surface soil that has been packed by the roller, to allow the air to enter, check evaporation, and destroy weeds.

Prizes obtained by Mr. St. Germain at the local seed fair were, four firsts, two seconds, one fourth and two fifths.

St. Clet, Vaudreuil County.—*Operator, Louis Besner.*

Growing conditions were somewhat more favourable in this district than in many others, as the drought did not extend over as long a period. Seeding commenced on field “ C ”, May 4. This field was seeded to Banner oats at the rate of 2⅗ bushels per acre, along with 8 pounds red clover, 2 pounds alsike and 10 pounds timothy. The catch of clover looked very promising in the fall as a thick, strong growth was produced. It will be noted that half of field “ A ” was cut for hay and the other half for seed. The yield of timothy seed was reduced on account of the dry weather at the time the seed was filling. Showers, however, came in time greatly to benefit the clover seed crop. Field “ A ” was ploughed on August 13, and kept frequently cultivated in preparation for corn in 1922.

The following table gives the results of the season's work:—

FOUR-YEAR ROTATION.

| Field. | Yield per Acre. | Standard Cost. | Actual Cost. |
|---|---|---|---|
| "A"—Timothy hay | 1 ton. | $9.07 per ton. | $11.80 per ton. |
| Timothy seed | 120 lbs. | .10 per lb. | .13 per lb. |
| "B"—Clover hay, 1st cut | 1 ton. | 5.61 per ton. | 7.09 per ton. |
| Clover seed, 2nd cut | 130 lbs. | .10 per lb. | .11 per lb. |
| "C"—Oats, Banner, seeded | 34 bush. | .41 per bush. | .51 per bush. |
| "D"—Corn, fodder, Leaming | 10 tons. | 1.46 per ton. | 1.90 per ton. |
| Corn ensilage | 10 tons. | 1.95 per ton. | 2.54 per ton. |

Clover seed growing has been found very profitable on this station. Mr. Besner has taken advantage of this fact and devoted 11 acres to red clover seed growing last season. Last year red clover seed was produced for ·15 per pound and this year for .11 per pound. This year he extended the area to 30 acres, and also purchased a clover huller. In this district it is very important that the first cut, or hay crop, should be cut early, so as to give the seed crop a chance to mature. On this station it will be interesting to note that the hay crop was cut on June 13 and the seed crop on September 7.

Packing and mulching the summer-ploughed land to hasten the decomposition of the sod.

St. Constant, Laprairie County.—*Operator, Roch Boule.*

This is the first year that this station has been in operation. The work carried on throughout the summer was preparatory to the four-year rotation, which will be established.

The following table gives the results of the season's work:—

FOUR-YEAR ROTATION.

| Field. | Yield per Acre. | Standard Cost. | Actual Cost. |
|---|---|---|---|
| "A"—Oats, Banner, seeded | 17 bush. | $0.67 per bush. | $0.96 per bush. |
| "B"—Oats, Banner, seeded | 17 bush. | .67 per bush. | .96 per bush. |
| "C"—Oats, Banner | 16 bush. | .73 per bush. | 1.06 per bush. |
| "D"—Oats, Banner | 16 bush. | .73 per bush. | 1.06 per bush. |

It will be noted that all fields were in oats this year. In order to get the rotation started this season, these were fall ploughed out of pasture sod. Because of the dry season and the undecomposed condition of the sod, the yields are rather low. Had the sod been ploughed in July or August, kept clean until autumn, then again ploughed, it would have been decayed. The soil would also have been in much finer tilth and very much heavier yields been obtained. The rate of seeding oats was 2½ bushels per acre. Field "A" and "B" received in addition 8 pounds red clover, 2 pounds alsike and 10 pounds timothy per acre. Field "D" has been summer-ploughed, kept frequently cultivated, and again ploughed this fall in preparation for hoed crop in 1922.

St. Etienne des Gres, St. Maurice County.—*Operator, Theodore Bournival.*

The crops at this station, like all the surrounding district, suffered greatly from drought. This season strikingly demonstrated the necessity of growing crops that would add humus to the soil of this district, as soil drifting occurred in some parts. Seeding commenced on May 9. Early in the spring, the clover crop on fields "B" and "C" looked promising. By the middle of June, however, hay and grain crops had completely dried up. There was practically no rain from seeding time to the third week in July. These July showers revived the hay crop and half ton of hay per acre was cut on August 30.

The following table gives the results of the season's work:—

FOUR-YEAR ROTATION.

| Field. | Yield per Acre. | Standard Cost. | Actual Cost. |
|---|---|---|---|
| "A"—Oats | A failure. | | |
| "B"—Clover hay | 1,000 lbs. | $17.75 per ton. | $17.75 per ton. |
| "C"—Clover hay | 1,000 lbs. | 17.75 per ton. | 17.75 per ton. |
| "D"—Potatoes | 250 bush. | .16 per bush. | .16 per bush. |
| Corn, Longfellow | 6 tons. | 4.24 per ton. | 4.24 per ton. |
| Canadian Corn | 52 bush. | .43 per bush. | .43 per bush. |
| Turnips | 500 bush. | .05 per bush. | .05 per bush. |

It will be noted that the oats and barley on field "A" were a failure, due to the continuous drought. This field was harrowed up and seeded on August 27, with 1½ bushels fall rye per acre, along with 4 pounds red clover, 6 pounds alsike and 10 pounds timothy. The heavy seeding of clovers, accompanied by frequent light applications of manure on the surface of the soil, has done a great deal to improve the texture of this light, sandy soil.

ST. FABIEN, RIMOUSKI COUNTY.—*Operator, Joseph Albert.*

This is the first year for illustration work at this centre. The soil on this Station varies considerably, from clay loams to light sands and mucks. The area under this work was divided into four sections, and the operations carried on were preparatory for a four-year rotation. Owing to the extremely dry weather throughout the growing season, all crops were exceptionally light.

The following table gives the results of the season's work:—

FOUR-YEAR ROTATION.

| Field. | Yield per Acre. | Standard Cost. | Actual Cost. |
|---|---|---|---|
| "A"—Timothy hay | 1,430 lbs. | $9.90 per ton. | $8.10 per ton. |
| "B"—Oats, Banner, seeded | 15 bush. | .78 per bush. | .69 per bush. |
| "C"—Potatoes, Eureka | 180 bush. | .53 per bush. | .52 per bush. |
| Mixed feed | 2 tons. | 5·29 per ton. | 4.61 per ton. |
| "D"—Old meadow | 645 lbs. | 22.82 per ton. | 18.60 per ton. |

In seeding down field "B," the rate of seeding was 2½ bushels oats per acre along with 8 pounds red clover, 2 pounds alsike and 10 pounds timothy. The mixed feed section in field "C" was seeded at the rate of 3 bushels per acre, made up of a mixture of 2 bushels oats, ½ bushel peas and ½ bushel vetches.

ST. GEDEON, CHICOUTIMI COUNTY.—*Operator, Joseph Simard.*

Conditions were much more favourable for growth at this Station than at most others. Seeding started on May 16. Field "A" in the four-year rotation and "B" in the three-year rotation were seeded with oats at the rate of 3 bushels per acre, along with 8 pounds red clover, 2 pounds alsike, 10 pounds timothy. The fall was very wet, so much so that the potato crop on field "D" was lost, and also the second cut of clover on "C". This wet weather continued up to October 14; on that date two inches of snow fell.

The following table gives the results of the season's work:—

FOUR-YEAR ROTATION.

| Field. | Yield per Acre. | Standard Cost. | Actual Cost. |
|---|---|---|---|
| "A"—Oats, Banner, seeded | 61 bush. | $0.17 per bush. | $0.34 per bush. |
| "B"—Timothy hay | 2 tons. | 4.42 per ton. | 9.29 per ton. |
| "C"—Clover hay | 1¾ tons. | 6.00 per ton. | 12.43 per ton. |
| "D"—Potatoes, Green Mountain | Unable to harvest because of excessive rainfall. | | |

THREE-YEAR ROTATION.

| Field. | Yield per Acre. | Standard Cost. | Actual Cost. |
|---|---|---|---|
| "A"—Clover hay | 1¾ tons. | 5·73 per ton. | 12.20 per ton. |
| "B"—Oats, Banner, seeded | 58 bush. | .16 per bush. | .32 per bush. |
| "C"—Potatoes, Eureka | 187 bush. | .21 per bush. | .31 per bush. |

*Cleaning seed grain.*—The introduction of new weeds into a district has often been traced directly to the seed grain. Only clean, pure seed should be used. Home-grown wheat, oats or barley can often be made excellent seed by removing the small grains and weed seeds, which may constitute all the way from one-third to one-half of the total bulk. The small grain and most of the weed seeds can be removed by a good fanning mill, if proper sieves be used and sufficient time be taken. While the size of the grain must determine the exact sieve that should be used, the following will indicate the sizes that have been found satisfactory.

For wheat, a zinc sieve with perforations about twelve, thirteen or fourteen-sixty-fourths of an inch in diameter is recommended as a riddle, with an eight-sixty-fourths or nine-sixty-fourths perforated zinc, or 7 by 7, 8 by 8, or 9 by 9 square mesh woven wire for the lower.

In cleaning oats, the most important sieve is the lower one. A useful sieve for this purpose is one made of zinc with oblong perforations. As a standard lower sieve, the five-sixty-fourths by half is recommended for oats.

St. Jean-Chrysostome, Levis County.—*Operator, Theophile Cantin.*

The work carried on at this station throughout the past year has been preparatory for the four-year rotation. A great deal of good work has been done in removing stones, opening and straightening ditches, so that the fields may be more efficiently and economically handled. Seeding commenced on May 10. Field " C " was seeded with Banner oats at the rate of 3 bushels per acre, along with 8 pounds red clover, 2 pounds alsike and 10 pounds timothy.

The following table gives the results of the season's work:—

FOUR-YEAR ROTATION.

| Field. | Yield per Acre. | Standard Cost. | Actual Cost. |
|---|---|---|---|
| "A"—Clover hay | 2 tons. | $4.39 per ton. | $9.31 per ton. |
| "B"—Corn, Longfellow | 18 tons. | 3.53 per ton. | 4.80 per ton. |
| Turnips, Jumbo | 30 tons. | 2.61 per ton. | 4.79 per ton. |
| Mangels | 30 tons. | 3.62 per ton. | 5.11 per ton. |
| Green Feed | 2 tons. | 8.87 per ton. | 14.50 per ton. |
| "C"—Oats, Banner, seeded | 20½ bush. | .58 per bush. | .82 per bush. |
| "D"—Timothy hay | 2 tons. | 4.37 per ton. | 9.26 per ton. |

A start was made this year in growing corn for ensilage purposes. The land was fall-ploughed and manured at the rate of 18 tons per acre. Longfellow was planted on May 25, and the crop was harvested on September 26. This variety was cut in the glazing stage for ensilage purposes. It will be noted that the cost of production is somewhat higher than on some of the other Stations. This was partly due to the cultivation that was necessary to keep the crop clean, as the practice of after-harvest cultivation was not possible when preparing the land for hoed crop. Mr. Cantin erected, during the summer, a 10 feet by 20 feet silo, and will devote a larger area to corn and sunflower growing next year.

St. Jerome, Terrebonne County.—*Operator, Wilfrid Guay.*

This is a new station. The cropping carried on this season was preparatory for the regular rotation. Part of field "A" was in pasture, one acre was spring-ploughed, and sown to Banner oats. A large percentage of this area was formerly in garden, hence the oats grew very rank and lodged badly. Fields "D" and "C" were seeded to Banner oats at the rate of 2½ bushels per acre, along with 8 pounds red clover, 2 pounds alsike, and 10 pounds timothy, on May 14. Field "C" was fall ploughed; part of this field was one-year-old sod. Field "D" was all old sod land. It will be noted that the field ploughed out of old sod yielded somewhat less than field "C."

The following table gives the results of the season's work:—

FOUR-YEAR ROTATION.

| Field. | Yield per Acre. | Standard Cost. | Actual Cost. |
|---|---|---|---|
| "A"—Oats, Banner | 26½ bush. | $0.56 per bush. | $0.78 per bush. |
| "B"—Corn, Leaming | 12 tons. | 1.56 per ton. | 2.64 per ton. |
| Turnips | 560½ bush. | .08 per bush. | .13 per bush. |
| Mangels | 379½ bush. | .09 per bush. | .16 per bush. |
| "C"—Oats, Banner, seeded | 47 bush. | .28 per bush. | .40 per bush. |
| "D"—Oats, Banner, seeded | 42 bush. | .31 per bush. | .45 per bush. |

Corn, turnips and mangels were grown on the hoed crop section with very fair success. This field was fall ploughed and thoroughly prepared prior to seeding. Corn was planted at the rate of 35 pounds, turnips at 3 pounds, and mangels at 4 pounds per acre. Mangels would have been still better if 7 or 8 pounds of seed had been used. A great deal of hand work was necessay to keep this field in good condition. This year, Mr. Guay has applied the practice of after-harvest cultivation on field "A," in preparation for hoed crop next spring. This will eliminate a great deal of hard work which otherwise is found necessary when growing root crops.

In the local crop competition, Mr. Guay won first on mangels and second on turnips, wheat and oats. At the seed fair he won first on wheat and oats.

St. Jules, Beauce County.—*Operator, George Cliche.*

Crops in this district suffered somewhat from lack of rain during the early part of the season. However, showers became more abundant and fair crops were harvested on the Station. Seeding started on May 20. Field "A" was seeded to Banner oats at the rate of 2½ bushels per acre, along with 8 pounds red clover, 2 pounds alsike and 10 pounds timothy. Field "B" produced two crops of clover hay. The second crop was intended for seed but the dry weather delayed the first cutting to such an extent that the second crop did not have time to mature seed, so was cut for hay.

The following table gives the results of the season's work:—

FOUR-YEAR ROTATION.

| Field. | Yield per Acre. | Standard Cost. | Actual Cost. |
|---|---|---|---|
| "A"—Oats, Banner, seeded | 35 bush. | $0.32 per bush. | $0.46 per bush. |
| "B"—Clover hay, 2 cuts | 3 tons. | 3.86 per ton. | 5.16 per ton. |
| "C"—Clover hay 1 cut, | 1½ ton. | 5.08 per ton. | 7.24 per ton. |
| "D"—Corn, Longfellow | 10 tons. | 5.25 per ton. | 6.29 per ton. |
| Turnips, Jumbo | 16 tons. | 2.19 per ton. | 2.65 per ton. |

It will be noted that a clover sod was turned under when preparing field "C" for hoed crop in 1922. This field was ploughed shallow as soon as the crop was taken off. It was cultivated four times during the summer and fall, to pulverize the soil and to control weeds. Prior to freezing up, the land was again ploughed as deeply as the humus in the soil would allow. In this district where there is so much permanent pasture, it is extremely desirable to have the cultivated land highly productive. On this Illustration Station, the practice of after-harvest cultivation, the heavy seeding of clover and timothy, and the systematic rotation of crops, have done a great deal towards greater and more economic production.

St. Julie, Verchere County.—*Operator, Leonidas Hebert.*

The soil on this farm is a heavy clay. The land baked badly, and crops suffered considerably because of the continued drought. Field "D" was seeded to Banner oats at the rate of 2½ bushels per acre, along with 8 pounds red clover, 2 pounds alsike and 10 pounds timothy. Field "C" was planted to corn, turnips and mangels. It will be noted that mangels did not do well this season. Five years' results go to show that this soil is not as well adapted to growing mangels, as to corn or turnips.

FOUR-YEAR ROTATION.

| Field. | Yield per Acre. | Standard Cost. | Actual Cost. |
|---|---|---|---|
| "A"—Timothy hay | 1 ton. | $9.74 per ton. | $13.00 per ton. |
| Timothy seed | 268 lbs. | .06 per lb. | .07 per lb. |
| "B"—Clover hay, 1st cut | 1 ton. | 5.99 per ton. | 7.78 per ton. |
| Clover seed, 2nd cut | 26 lbs. | .25 per lb. | .32 per lb. |
| "C"—Corn | 18 tons. | .77 per ton. | 1.03 per ton. |
| Ensilage | 18 " | 1.07 per ton. | 1.34 per ton. |
| Turnips | 18 tons, 666 lbs. | 1.39 per ton. | 1.61 per ton. |
| Mangels | 2 tons. | | |
| "D"—Oats, seeded | 40 bush. | .39 per bush. | .51 per bush. |

This season was not at all favourable for the production of red clover seed at this Station. The first cut was taken off in plenty of time, namely June 22, but, due to the dry weather, the second growth came very slowly, and the seed did not fill properly. Hence it cost 32 cents per pound to produce red clover seed this year. However, five years' results go to show that this is unusual, as the average cost of producing clover seed at this Station was 19 cents per pound.

St. Leonard Junction, Nicolet County.—*Operator, Henry Carter.*

This is the first year that this Station has been in operation. The work carried on so far is preparatory for the four-year rotation. It will be noted the yields are low. This is partly due to the excessively dry weather experienced during the growing season.

The following table gives the results of the season's work:—

FOUR-YEAR ROTATION.

| Field. | Yield per Acre. | Standard Cost. | Actual Cost. |
|---|---|---|---|
| "A"—Timothy hay | 1,875 lbs. | $7.44 per ton. | $14.41 per ton. |
| "B"—Timothy hay | 1,125 lbs. | 12.40 per ton. | 24.00 per ton. |
| "C"—Oats, Banner, seeded | 34 bush. | .28 per bush. | .55 per bush. |
| "D"—Corn, Leaming | 15 tons. | 2.01 per ton. | 2.74 per ton. |
| Turnips, Jumbo | 27¾ tons. | 1.18 per ton. | 1.62 per ton. |

Corn and roots did very well and greatly helped the feed situation caused by the short hay crop. Field "B" was a three-year-old sod and was summer ploughed and kept frequently cultivated, to free the land from couch grass and to prepare it for the corn and root crops in 1922. Field "C" was seeded on May 16 with Banner oats, at the rate of 2½ bushels per acre along with 8 pounds red clover, 2 pounds alsike and 10 pounds timothy.

In the local crop competition, Mr. Carter won first on turnips.

ST. SIMON, BAGOT COUNTY.—*Operator, Donat Rivard.*

This was a new Station. The work throughout the year has been preparatory for the four-year rotation. It will be noted that fields "C" and "D" are both two-year-old meadows. These fields were both summer ploughed, kept frequently cultivated and again fall ploughed. This frequent tillage was to prepare the land in field "D" for corn and field "C" for the seeding to grasses and clovers with oats as a nurse crop.

The following table gives the results of the season's work:—

FOUR-YEAR ROTATION.

| Field. | Yield per Acre. | Standard Cost. | Actual Cost. |
|---|---|---|---|
| "A"—Mangels | 14 tons. | $2.91 per ton. | $3.92 per ton. |
| Turnips | 12 tons. | 3.14 per ton. | 4.25 per ton |
| Corn | 11 tons. | 4.17 per ton. | 5.75 per ton. |
| "B"—Oats, Banner, seeded | 39 bush. | .36 per bush. | .47 per bush. |
| "C"—Timothy hay | 1¼ ton. | 9·44 per ton. | 12.98 per ton. |
| "D"—Timothy hay | 1¼ ton. | 9.44 per ton. | 12.98 per ton. |

Oats were seeded on this station May 4, at the rate of 2 bushels per acre, along with 8 pounds red clover, 2 pounds alsike and 10 pounds timothy. The yield was not high because of the continued drought. Mr. Rivard is a grower of registered Banner oats, and had a number of bushels of this seed for sale. The quality of his crops can be judged from the fact that he took first prize on Banner oats and fodder corn, also second prize on wheat, turnips and mangels, in the district crop competition.

ST. TITE, CHAMPLAIN COUNTY—*Operator, N. P. Delisle.*

This is the second year that this station has been in operation. During this time the four-year rotation has been fairly well established. The soil is a heavy clay. The dry weather made it practically impossible to get a good stand of roots. The mangels especially suffered, and had to be harrowed up and seeded to peas, oats and vetches. Field " B " was seeded to oats on May 2. The rate of seeding was 2½ bushels oats, 8 pounds red clover, 2 pounds alsike and 10 pounds timothy.

The following table gives the results of the season's work:—

FOUR-YEAR ROTATION.

| Field. | Yield per Acre. | Standard Cost. | Actual Cost. |
|---|---|---|---|
| "A"—Potatoes | 300 bush. | $0.25 per bush. | $0.35 per bush. |
| Turnips | 9 tons. | 10.73 per ton. | 13.35 per ton. |
| Mixed crop | 2½ tons. | 8.40 per ton. | 12.20 per ton. |
| "B"—Oats, Banner, seeded | 33 bush. | .46 per bush. | .64 per bush. |
| "C"—Clover hay | 1¼ ton. | 8.12 per ton. | 11.28 per ton. |
| "D"—Clover hay | ¾ ton. | 8.23 per ton. | 11.35 per ton. |

The objection is sometimes raised against a four-year rotation that there is more land in hoed crop than can be handled. In such cases, the extra land may be seeded to a mixed crop of peas, oats and vetches, as was done in this case. The land should be prepared as for a hoed crop by ploughing shallow as soon as the hay crop is taken off. Keep the field frequently cultivated to destroy weeds and plough again in the fall, to a depth of 5 or 6 inches, or deeper, depending on the nature of the soil. The following year, as soon as the mixed crop is taken off, cultivate the land until late fall. The land should then be ploughed and left ridged up to the action of the frost. By this method the old sod becomes decomposed, weeds are destroyed and a fine seed bed can be prepared for the reception of grain, grasses and clovers.

## ILLUSTRATION STATIONS IN NEW BRUNSWICK

This is the second year that the division has been carrying on illustration work in this province. Ten stations have now been established, five of these being in operation last year.

To get the new stations under a regular rotation as quickly as possible, it was found necessary to spring plough certain fields out of sod. This of course did not bring about ideal conditions for maximum crop returns. Hence, the cost of production on the new stations can hardly be compared with those which have been in operation for two years.

The following plan illustrates briefly the rotation that is being established on the Illustration Stations in New Brunswick:—

FOUR-YEAR ROTATION.

| — | Field "A" | Field "B" | Field "C" | Field "D" |
|---|---|---|---|---|
| First year | Hoed crops or part mixed crops. | Grain and seeded. Clover 10 lbs., timothy 10 lbs., per acre. | Clover hay | Timothy hay or pasture. |
| Second year | Grain and seeded. Clover 10 lbs., timothy 10 lbs. per acre. | Clover hay | Timothy hay or pasture. | Hoed crops or part mixed crops. |
| Third year | Clover hay | Timothy hay or pasture. | Hoed crops or part mixed crops. | Grain and seeded. Clover 10 lbs., timothy, 10 lbs. per acre. |
| Fourth year | Timothy hay or pasture | Hoed crops or part mixed crops. | Grain and seeded. Clover 10 lbs. timothy 10 lbs., per acre. | Clover hay. |

In making up the report for the province, the cost of production is based on the undermentioned prices. The yields of corn, roots and hay are estimated in all reports.

In determining *standard cost,* all Illustration Stations in the province are figured on the same cost basis. In this way the cost of production is comparative, one station with the other. *Actual cost* is based on the prevailing price of labour, value of land, etc., at each station.

| | Standard Cost | Actual Cost. |
|---|---|---|
| Rent of land, per acre | $2 00 | Based on value of land at 6% interest. |
| Use of machinery, per acre | 0 75 | $0 75 |
| Manual labour, per hour | 0 20 | Based on prices prevalent in the district. |
| Horse labour, per hour | 0 10 | |
| Threshing— | | |
| Wheat, per bushel | 0 07 | |
| Oats, per bushel | 0 04 | |
| Cost of Seed— | | |
| Oats, Banner, per bushel | 1 00 | 1 05 |
| Wheat, Huron, per bushel | 1 50 | 2 31 |
| Corn, per bushel | 1 50 | 2 75 |
| Timothy, per hundred | 14 50 | 14 50 |
| Clover, red and alsike, per hundred | 32 00 | 32 00 |

ADAMSVILLE, KENT COUNTY—*Operator, J. A. Arsenault.*

This is the first year that illustration work has been carried on at this centre. The four-year rotation that is planned for this station is still in preparation. It will be noted that hay fields have not been established so far. However, fields "C" and "D" were seeded down this spring with 5 pounds red clover, 5 pounds alsike and 10 pounds timothy, along with 2 bushels Banner oats as a nurse crop.

The following table gives the results of the season's work:—

FOUR-YEAR ROTATION.

| Field. | Yield per Acre. | Standard Cost. | Actual Cost. |
|---|---|---|---|
| Field "A"—Potatoes | 297 bush. | $0.20 per bush. | $0.21 per bush. |
| Turnips | 600 bush. | .07 per bush. | .07 per bush. |
| Field "B"—Mixed grain | ⅝ ton. | 11.20 per ton | 11.84 per ton. |
| Field "C"—Oats, Banner, seeded | 40 bush. | .47 per bush. | .47 per bush. |
| Field "D"—Oats, Banner, seeded | 40 bush. | .47 per bush. | .47 per bush. |

The value of selected seed was well illustrated on this station this season. Selected Green Mountain potatoes were supplied by the Experimental Farm, at Fredericton, and grown alongside the same variety of unselected seed. The returns were not only evident in the form of an increased yield of 149 bushels per acre, but the crop from the selected seed was much freer from disease and produced the cleanest and most uniform tubers.

APOHAQUI, KING'S COUNTY—*Operator, James H. Manchester.*

During the past season, the regular rotation work has been interfered with by underdrainage operations. These operations increased the labour necessary in handling the crops; for this reason, their exact cost of production was not determined. This underdrainage work was completed this fall. The land has been divided up in preparation for a four-year rotation. Field "C" has been ploughed up and prepared for hoed crops in 1922. Corn did very well at this station. It yielded 12 tons per acre.

Illustration Station at Apohaqui.

BOUNDARY CREEK, WESTMORELAND COUNTY.—*Operator, M. D. Steeves.*

This is the first year that this station has been in operation. During the past season the work carried on at this centre was directed towards getting the land under a systematic crop rotation. It will be noted that yields are rather low. This is due, in a large degree, to spring ploughing, which necessitated late seeding. Seeding of oats commenced on field "B," June 3. Following the late seeding came drought. Mangels were seeded on a portion of field "C". These failed to germinate and the land was re-seeded to turnips, hence the difference in the cost of production between the two portions of the field.

The following table gives the results of the season's work:—

FOUR-YEAR ROTATION.

| Field. | Yield per Acre. | Standard Cost. | Actual Cost. |
|---|---|---|---|
| "A"—Wheat, Huron | 12 bush. | $1.12 per bush. | $1.27 per bush. |
| Hay | 1½ ton. | 5.12 per ton. | 5.36 per ton. |
| "B"—Oats, Banner, seeded | 30 bush. | .46 per bush. | .50 per bush. |
| "C"—Turnips | 240 " | .25 " | .26 " |
| Potatoes | 184 " | .38 " | .39 " |
| Turnips | 255 " | .20 " | .23 " |
| "D"—Oats, Banner, seeded | 27½ " | .47 " | .54 " |

In the rotation as planned, it can be seen that the land has been divided into four equal areas. When the rotation has been properly established, one-quarter of the land will be in grain, one-quarter in mixed hay, or pasture, one-quarter in clover hay and one-quarter in hoed crops such as corn, turnips, mangels, or potatoes.

In making up the cost of production, all factors such as, horse and manual labour, rent of land, use of machinery, cost of seeds, cost of threshing, binder twine, etc., are taken into account and charged to each crop. In order to check up defects in farm practice and at the same time determine the most profitable lines to follow, a simple system of farm accounting will be found valuable.

Lower Derby, Northumberland County, N.B.—*Operator, W. R. Taylor.*

This is a new station and only started operations this spring, The cultural work carried on throughout the season has been directed towards the preparation of the land for a four-year rotation. The economic value of such a rotation rests on the fact that, while each crop is being grown to its own greatest advantage, it is, at the same time, preparing the soil for the reception of the succeeding crop.

The following table gives the results of the season's work:—

FOUR-YEAR ROTATION.

| Field. | Yield per Acre. | Standard Cost. | Actual Cost. |
|---|---|---|---|
| "A"—Mangels | 608 bush. | $0.29 per bush. | $0.34 per bush. |
| Turnips | 560 " | .14 " | .16 " |
| Potatoes | 275 " | .31 " | .37 " |
| "B"—Wheat, Huron, seeded | Failure (cut for | hay) | |
| Oats, Banner, seeded | Failure (cut for | hay) | |
| "C"—Clover hay | 1⅓ ton. | 6.56 per ton. | 7.58 per ton. |
| "D"—Timothy hay | 1⅓ ton. | 6.56 per ton. | 7.58 per ton. |

The season was very dry and its effect was particularly noticeable on field "B". This field was seeded to wheat and oats at the rate of 1½ and 3 bushels per acre respectively, along with 5 pounds red clover, 5 pounds alsike and 10 pounds timothy. The wheat and oat crop were cut for hay as they were pratically failures. This was partly accounted for by the fact that the field was spring ploughed.

To prepare the land for next year's hoed crop, field " D " was shallow-ploughed as soon as the hay crop was taken off. The land was kept frequently cultivated to destroy weeds, and again ploughed in the fall as deep as the nature of the soil would allow. This cultivation was very successful in destroying the couch that was present in this old sod. Undoubtedly, next year's hoed crop will be handled with a great deal less hand hoeing than was needed this year, when the land was simply fall ploughed.

Little Shemogue, Westmoreland County.—*Operator, Arthur Oulton.*

This station was selected for illustration work during the summer. The land has been divided off and fields " A ", " B " and " C " have been ploughed in preparation for cropping in 1922. Field " C " was newly seeded this spring, so will be in clover hay next year.

Middle Coverdale, Westmoreland County.—*Operator, H. E. Mitton.*

This is the second year that this station has been in operation. Seeding commenced on field " C " May 12. Part of this field was seeded to Banner oats, part to Huron wheat, along with 8 pounds red clover, 2 pounds alsike, and 10 pounds timothy.

The following table gives the result of the season's work:—

FOUR-YEAR ROTATION.

| Field. | Yield per Acre. | Standard Cost. | Actual Cost. |
|---|---|---|---|
| "A"—Oats, Banner | 35 bush. | $0.33 per bush. | $0.44 per bush. |
| Wheat, Huron | 15 bush. | .93 " | 1.13 " |
| "B"—Turnips | 1,000 " | .04 " | .05 " |
| Potatoes | 297 " | .22 " | .25 " |
| Green Feed | 5 tons. | 2.36 per ton. | 2.94 per ton. |
| "C"—Timothy hay | 1¾ ton. | 4.75 " | 6.04 " |
| "D"—Clover hay | 1¾ " | 4.95 " | 6.31 " |

Although the season was dry, hoed crops did very well at this station. The satisfactory yield of turnips is in no small measure due to the preparation of the land and the frequent cultivation during the growing season. It frequently happens that when following a four-year rotation, there is more land than is required for hoed crops. This objection can be met by sowing peas, oats and vetches for hay, as was done in this case. As soon as the green feed is removed, the land should be disced, kept cultivated and ploughed in the fall.

Millville, York County.—*Operator, Patrick Graham.*

Hay crops, especially, suffered in this district due to the lack of rain. The hoed crops, however, withstood the dry weather fairly well. This is the second year that this station has been in operation. The work carried on throughout the year has been directed towards the establishing of a four-year rotation on the land taken over for illustration work.

The following table gives the results of the season's work:—

FOUR-YEAR ROTATION.

| Field. | Yield per Acre. | Standard Cost. | Actual Cost. |
|---|---|---|---|
| "A"—Potatoes | 275 bush. | $0.29 per bush. | $0.31 per bush. |
| Turnips | 666 " | .10 " | .13 " |
| "B"—Clover hay | ⅘ ton. | 9.05 per ton. | 7.36 per ton. |
| "C"—Timothy hay | ⅘ ton. | 9.85 per ton. | 8.34 per ton. |
| "D"—Wheat, Huron, seeded | 8 bush. | .76 per bush. | .73 per bush. |
| Oats, Banner, seeded | 40 " | .39 " | .39 " |

*Inoculating Clover Seed.*—When seeding down field "D" to grasses and clovers, 8 pounds red clover, 2 pounds alsike and 10 pounds timothy were used per acre. A strip through the field was seeded using only half the above amounts. This fall, a great difference could be noted in favour of the heavy seeding. A portion of the field was also seeded with inoculated clover seed, and the other portion with untreated seed. The inoculated seed gave a much stronger growth and on examining the roots, a much greater development of nodules was evident, due to treatment of the seed with nitro-culture.

Free distribution of a limited quantity of nitro-culture to individual applicants is still being maintained, on application to the Division of Botany, Central Experimental Farm, Ottawa.

PERTH JUNCTION, VICTORIA COUNTY.—*Operator, R. J. McCrea.*

This is the first year that illustration work has been carried on at this centre. The work undertaken during the summer was the preparation of the land for a four-year rotation. The season was dry and crops naturally suffered.

The following table gives the results of the season's work:—

FOUR-YEAR ROTATION.

| Field. | Yield per Acre. | Standard Cost. | Actual Cost. |
|---|---|---|---|
| "A"—Potatoes | 140 bush. | $0.16 per bush. | $0.21 per bush. |
| "B"—Wheat | 19 " | 1.10 " | 1.25 " |
| "C"—Oats, Banner, seeded | 25 " | .60 " | |
| "D"—Timothy hay | 1¼ ton. | 6.86 per ton | 6.93 per ton. |

Seeding commenced on this station on May 6. Field "C" was seeded to oats at the rate of 3 bushels per acre, along with 8 pounds red clover, 2 pounds alsike and 10 pounds timothy. This field was given a light dressing of manure on August 26. The catch of clover looked very promising this fall. Field "A" was planted to potatoes on May 14, at the rate of 15 bushels per acre. The presence of mosaic through the county is the cause of great loss to potato growers. This can be detected by the faint, yellowish-green spots present on the leaves. An isolated seed plot should be kept by every potato grower, to supply healthy seed for each year's planting.

REXTON, KENT COUNTY.—*Operator, J. G. Dickinson.*

This is the second year that this station has been in operation. The work so far has been preparatory for the four-year rotation. Seeding commenced on field "D" May 13. The early part of the season was very dry, hence hay and grain crops suffered.

The following table gives the results of the season's work:—

FOUR-YEAR ROTATION.

| Field. | Yield per Acre. | Standard Cost. | Actual Cost. |
|---|---|---|---|
| "A"—Hay | ⅚ ton. | $8.94 per ton. | $7.38 per ton. |
| "B"—Wheat, White Russian | 9 bush. | .94 per bush. | 1.07 per bush. |
| Wheat, Huron | 12 " | .63 " | .72 " |
| "C"—Potatoes | 274 " | .45 " | .56 " |
| Turnips | 690 " | .16 " | .20 " |
| Green Feed | 2 tons. | 10.03 per ton. | 10.87 per ton. |
| Hay | 1⅕ ton. | 6.78 per ton. | 5.67 per ton. |
| "D"—Oats, Banner, seeded | 23 bush. | .42 per bush. | .51 per bush. |

In this district, to which corn is not especially well adapted, the economic production of root crops is of great importance. To grow profitable crops of roots, the land should be properly prepared and the thinning must be quickly and easily done. In thinning turnips and mangels, the ordinary hoe requires certain altering; first, the neck should be straightened so that the handle will be at right angles to the blade. This will allow the operator to pull and push out the plants. Secondly, the top and sides of the blade should be cut off, making the ends about four inches wide and forming four square corners. Both ends should be straightened and kept sharp as well as the blade. The square corners are essential in separating the plants when thinning. Thirdly, a longer handle should be put on the hoe so that the operator can walk between the first and second row from the one he is thinning. By so doing he can see under the small leaves and separate the plants better than when working over them. Thinning should be done when the plants are from 1½ to 2 inches high. If left longer, the plants get matted and are hard to separate.

WOODSTOCK, CARLETON COUNTY.—*Operator, E. W. Turner.*

Crops suffered a great deal in this district because of the unusually dry season. The value of heavy seeding of clover has been very apparent on this station. Although the crop was light because of the dry season, the portion seeded at the rate of 10 pounds clover gave a decidedly thicker and stronger growth than that portion of the field seeded at 5 pounds per acre.

Seeding started on May 16. Field "B" was seeded to Banner oats at the rate of 3 bushels per acre, along with 5 pounds red clover, 5 pounds alsike and 10 pounds timothy.

The following table gives the results of the season's work:—

FOUR-YEAR ROTATION.

| Field. | Yield per Acre. | Standard Cost. | Actual Cost. |
|---|---|---|---|
| "A"—Potatoes | 246 bush. | $0.44 per bush. | $0.43 per bush. |
| "B"—Oats, Banner, seeded | 25 bush. | .53 per bush. | .48 per bush. |
| "C"—Clover hay | ½ ton. | 13.86 per ton. | 13.46 per ton. |
| "D"—Timothy hay | 1,100 lbs. | 13.73 per ton. | 12.36 per ton. |

Field "A" was planted to potatoes, on May 19, at the rate of 16 bushels per acre. This field contained 5 acres. Commercial fertilizer was applied to the whole area. The field was then divided into equal areas, one half of the field received a light application of manure in addition. It will be interesting to note that this sandy loam soil with the application of manure gave an increased yield of 42 bushels per acre over the portion that received fertilizer alone.

## ILLUSTRATION STATIONS IN NOVA SCOTIA

During the past year the division has extended its work in this province. In 1920, six stations were in operation. This year six new stations have been added, bringing the number up to twelve for the province.

These stations will all be operated under a definite rotation, usually of a four-year duration. This will necessitate a cleaning, or hoed crop, and the heavy seeding of clovers. The rate of seeding clover is 10 pounds per acre. The proportion of red to alsike varies with the type of soil. On certain damp or light, worn-out soils, the proportion used is 5 pounds red clover, 5 pounds alsike. The standard mixture, however, is 8 pounds red clover, 2 pounds alsike and 10 pounds timothy.

The following plan briefly illustrates the rotation carried on in this province:—

### FOUR-YEAR ROTATION.

| | Field "A". | Field "B". | Field "C" | Field "D". |
|---|---|---|---|---|
| First year.......... | Hoed crops or part mixed crops. | Grain and seeded. Clover 10 lbs., timothy 10 lbs. per acre. | Clover hay. | Timothy hay or pasture. |
| Second year......... | Grain and seeded. Clover 10 lbs. timothy 10 lbs. per acre. | Clover hay. | Timothy hay or pasture. | Hoed crops or part mixed crops. |
| Third year.......... | Clover hay. | Timothy hay or pasture. | Hoed crops or part mixed crops. | Grain and seeded. Clover 10 lbs. timothy 10 lbs. per acre. |
| Fourth year......... | Timothy hay or pasture. | Hoed crops or part mixed crops. | Grain and seeded. Clover 10 lbs., timothy 10 lbs. per acre. | Clover hay. |

In making up the report for the province, the cost of production is based on the undermentioned prices. The yields of corn, roots and hay are estimated in all reports.

In determining *standard cost,* all Illustration Stations in the province are figured on the same basis. In this way the cost of production is comparative, one station with the other.

*Actual cost is* based on the prevailing price of labour, value of land, etc., at each station.

| | Standard Cost | Actual Cost |
|---|---|---|
| Rent of land, per acre.. .. .. .. .. .. .. .. .. .. .. .. | $2 00 | Based on value of land at 6% interest. |
| Use of machinery, per acre.. .. .. .. .. .. .. .. .. .. | 0 75 | $0 75 |
| Manual labour, per hour.. .. .. .. .. .. .. .. .. .. .. | 0 20 | Based on prices prevalent in the district. |
| Horse labour, per hour.. .. .. .. .. .. .. .. .. .. .. .. | 0 10 | |
| Threshing— | | |
| Wheat, per bushel.. .. .. .. .. .. .. .. .. .. .. .. .. | 0 07 | |
| Oats, per bushel.. .. .. .. .. .. .. .. .. .. .. .. .. | 0 04 | |
| Cost of Seed— | | |
| Oats, Banner, per bushel.. .. .. .. .. .. .. .. .. .. | 1 00 | 1 05 |
| Wheat, Huron, per bushel.. .. .. .. .. .. .. .. .. .. | 1 50 | 2 31 |
| Corn, per bushel.. .. .. .. .. .. .. .. .. .. .. .. .. | 1 50 | 2 75 |
| Timothy, per hundred.. .. .. .. .. .. .. .. .. .. .. | 14 50 | 14 50 |
| Clover, red and alsike, per hundred.. .. .. .. .. .. | 32 00 | 32 00 |

The work carried on at this station has been of a preparatory nature; considerable new land has been broken and is in condition for seeding in the spring of 1922.

BIG BADDECK, VICTORIA COUNTY.—*Operator, J. A. Kiley.*

Illustration work has been carried on at this centre for the past two years. The preparation of the land for a four-year rotation and the growing of hoed crops have been the main lines undertaken so far. The season was dry for this district. Seeding started on May 14, at this station.

The following table gives the results for the season's work:—

FOUR-YEAR ROTATION.

| Field. | Yield per Acre. | Standard Cost. | Actual Cost. |
|---|---|---|---|
| "A'—Turnips | 918 bush. | $ .04 per bush. | $ .05 per bush. |
| "B"—Timothy hay | 1 ton. | 5.93 per ton. | 4.90 per ton. |
| "C"—Timothy hay | ⅘ ton. | 7.94 per ton. | 5.76 per ton. |
| "D"—Oats, Banner, seeded | 28 bush. | .92 per bush. | 1.03 per bush. |

It will be interesting to note that part of this station is operating on land that was down in sod for seventy years. When the work started, the land produced only native grasses and moss. It may be noted that this year, field "A" yielded 918 bushels of turnips per acre. To get the land into shape, it was ploughed up and seeded to oats in 1920. As soon as the oat crop was taken off, the field was ploughed up and the practice of after-harvest cultivation was followed. Fifteen tons of stable manure, and 300 pounds of Belgium slag were applied per acre. The land was drilled and planted to turnips at the rate of 3 pounds per acre, on May 20.

Cultivation helps the turnip crop through a dry season.

CHRISTMAS ISLAND, NORTH CAPE BRETON COUNTY.—*Operator, J. A. McNeil.*

This station was selected for illustration work during the summer. The land was summer-ploughed and kept cultivated in preparation for seeding in 1922.

HEATHERTON, ANTIGONISH COUNTY.—*Operator, D. W. Grant.*

Illustration work started at this centre this year. All fields were fall ploughed and prepared for cropping this season. Fields "C" and "D" were seeded on May 25 with Banner oats, at the rate of 3 bushels per acre, along with 8 pounds red clover, 2 pounds alsike, and 10 pounds timothy. A portion of one of these fields was seeded with clover, inoculated with nitro-culture, another portion with untreated seed. A decidedly better growth could be noticed in the portion seeded with treated seed.

The following table gives the results of the season's work:—

FOUR-YEAR ROTATION.

| Field. | Yield per Acre. | Standard Cost. | Actual Cost. |
|---|---|---|---|
| "A" Oats, Banner, seeded | 73 bush. | $ .26 per bush. | $ .33 per bush. |
| "B" Wheat, Huron, seeded | 16 bush. | 1.07 per bush. | 1.36 per bush. |
| "C"—Oats, Banner | 73 bush. | .26 per bush. | .33 per bush. |
| "D"—Potatoes | 150 bush. | .31 per bush. | .34 per bush. |
| Turnips | 600 bush. | .15 per bush. | .15 per bush. |

The soils in this district are rather light and sandy in nature. The thorough preparation and cultivation of the seed bed, accompanied by the heavy seeding of clover gives promise of valuable returns. Mr. Grant was awarded second prize on oats in the standing field crop competition, the crop on field " C " scored 92 points.

KENNETCOOK.—*Operator, N. L. Neil.*

The regular rotation work has been continued at this station during the past season. The season was very dry and all crops have been very light. The potato crop was practically a failure. Seeding started on May 14.

The following table gives the results of the season's work:—

FOUR-YEAR ROTATION.

| Field. | Yield per Acre. | Standard Cost. | Actual Cost. |
|---|---|---|---|
| "A"—Clover hay | 1⅖ ton. | $4.38 per ton. | $4.55 per ton. |
| "B"—Potatoes | A failure. | | |
| "C"—Oats | Returns incomplete. | | |
| "D"—Timothy hay | 1⅓ ton. | 4.86 per ton. | 5.17 per ton. |

MABOU, INVERNESS COUNTY.—*Operator, Duncan Boyle.*

A four-year rotation is in preparation at this station. The following table gives the results of the season's work:—

FOUR-YEAR ROTATION.

| Field. | Yield per Acre. | Standard Cost. | Actual Cost. |
|---|---|---|---|
| "A"—Clover hay | 2⅖ ton. | $7.04 per ton. | $7.41 per ton. |
| "B"—Timothy hay | 2 tons. | 3.31 per ton. | 2.99 per ton. |
| "C"—Oats, Banner, seeded | 24 bush. | .85 per bush. | 1.01 per bush. |
| "D"—Oats, Banner, seeded | 32 bush. | .64 per bush. | .82 per bush. |

Seeding started at this station on May 27. In seeding fields " C " and " D," 3 bushels of Banner oats along with 5 pounds red clover, 5 pounds alsike, and 10 pounds timothy was used per acre. The practice of after-harvest cultivation was followed in preparing field " B " for hoed crop in 1922.

MIDDLE RIVER, VICTORIA COUNTY.—*Operator, Forbes MacDonald.*

This station was selected during the summer. The fields were all in hay. As soon as the crop was removed, the land was ploughed and worked in preparation for cropping in 1922.

## ILLUSTRATION STATIONS IN NOVA SCOTIA

NEW GLASGOW, PICTOU COUNTY.—*Operator, George P. Fraser.*

The season was drier than usual at this station. Seeding started on May 25. When seeding field "A," 2¾ bushels Banner oats, and 18 pounds grass and clover seed, was used per acre. The grass and clover mixture was made up in the proportion of 8 pounds red clover, 2 pounds alsike and 10 pounds timothy. On examination this fall, the seed treated with nitro-culture produced much the stronger growth, and showed a good nodule development, whereas there were very few nodules on the untreated seed.

. The following table gives the results of the season's work:—

FOUR-YEAR ROTATION.

| Field. | Yield per Acre. | Standard Cost. | Actual Cost. |
|---|---|---|---|
| "A"—Oats, Banner, seeded | 41 bush. | $0.33 per. bush. | $0.45 per bush. |
| "B"—Timothy hay | ½ ton. | 12.16 per ton. | 14.16 per ton. |
| Potatoes | 225 bush. | .35 per bush. | .40 per bush. |
| "C"—Mangels | 400 bush. | .11 per bush. | .15 per bush. |
| Turnips | 335 bush. | .11 per bush. | .14 per bush. |
| "D"—Clover hay | 1,500 lbs. | 6.78 per ton. | 11.17 per ton. |

The turnip crop was cut down materially at this Station due to the damage caused by the turnip aphis. Excellent results were obtained in controlling the late blight of potatoes on field "B." The potato crop was planted on June 3, and received five sprayings of Bordeaux mixture. The strength used was 4 pounds copper sulphate, 4 pounds quicklime, and 40 gallons of water. The two first sprays contained in addition, 1 pound of Paris green. The dates of spraying were as follows:—July 16, August 2, August 20, September 5, and September 19. The potato tops were still nice and green when unsprayed fields in the district were all wilted down.

Mr. Fraser took first prize at the Pictou Fair, on potatoes.

NORTH EAST MARGAREE, INVERNESS COUNTY.—*Operator, T. E. Ross.*

The work carried on through the summer has been so directed as to get the land under a four-year rotation. Field "A" was planted to potatoes and turnips on June 11. On July 16, the potato crop was cut to the ground by frost. This necessitated the land being harrowed up and sown to oats for green feed. The turnip crop was also seriously affected by this frost, but recovered.

The following table gives the results of the season's work:—

FOUR-YEAR ROTATION.

| Field. | Yield per Acre. | Standard Cost. | Actual Cost. |
|---|---|---|---|
| "A"—Turnips | 600 bush. | $0.10 per bush. | $0.12 per bush. |
| Green Feed | 1⅓ ton. | 15.70 per ton. | 19.75 per ton. |
| "B"—Oats, Banner, seeded | 25 bush. | .59 per bush. | .81 per bush. |
| "C"—Oats, Banner, seeded | 27 bush. | .46 per bush. | .66 per bush. |
| "D"—Oats, Banner | 29 bush. | .40 per bush. | .57 per bush. |

Great loss is suffered annually, due to the destruction caused by smut. A loss of 5 per cent of the crop is common, and fields affected to the extent of 50 per cent have been observed. On the Illustration Stations, it has been demonstrated that this loss can be prevented. To control loose smut of oats and the stinking smut of wheat, the method followed was to sprinkle the seed with a solution made up of 1 pound of formalin in 40 gallons of water. After the seed is thoroughly moistened with the solution, put it in a pile and cover it with sacks for two or three hours, then spread out to dry. The sacks should be dipped into the solution, and the grain drill seed box washed out, to prevent the grain from again becoming affected.

SYDNEY RIVER, CAPE BRETON COUNTY.—*Operator, Melvin Morshead.*

This is the second year that this Station has been in operation. During this time, a four-year rotation has been fairly well established. Seeding commenced on June 1. The oats in field "B" germinated very poorly because of the unusually dry weather.

The following table gives the results of the season's work:—

FOUR-YEAR ROTATION.

| Field. | Yield per Acre. | Standard Cost. | Actual Cost. |
|---|---|---|---|
| "A"—Potatoes | 300 bush. | $0.25 per bush. | $0.30 per bush. |
| Turnips | 500 bush. | .11 per bush. | .14 per bush. |
| "B"—Timothy hay | 2 tons. | 5.40 per ton. | 5.41 per ton. |
| "C"—Timothy hay | 1¼ ton. | 8.25 per ton. | 7.82 per ton. |
| "D"—Oats, Banner, seeded | 15 bush. | 1.26 per bush. | 1.52 per bush. |

After field "A" received the regular soil preparation for the hoed crop, an application of slacked lime was applied. It has been found that a large percentage of the soils in this district are acid and can be benefited by the use of lime in some form. Such application will correct the acidity of the soil and create more favourable conditions for the growth of the clovers.

It will be interesting to note that Mr. Morshead received twenty prizes on live stock, cereals and garden exhibits, at the Cape Breton Island Exhibition; ten of these were first prizes.

TATAMAGOUCHE, COLCHESTER COUNTY.—*Operator, G. B. Clark.*

Illustration work has been carried on at this centre for the past two years. Two four-year rotations are under way at this Station. One rotation includes a hoed crop, the other does not include a hoed crop, but the practice of after-harvest cultivation will be followed to pulverize and clean the land from weeds. Seeding started on this Station on May 31. The dry season and damage caused by the cutworm greatly reduced the yield of turnips.

The following table gives the results of the season's work:—

FOUR-YEAR ROTATION.

| Field. | Yield per Acre. | Standard Cost. | Actual Cost. |
|---|---|---|---|
| "A"—Clover hay | 2½ tons. | $4.11 per ton. | $4.14 per ton. |
| "B"—Turnips | 596 bush. | .14 per bush. | .15 per bush. |
| Potatoes | 130 bush. | .92 per bush. | .98 per bush. |
| "C"—Wheat, Huron, seeded | 10½ bush. | 1.08 per bush. | 1.13 per bush. |
| "D"—Clover hay | 2 tons. | 5.03 per ton. | 5.41 per ton. |

FOUR-YEAR ROTATION (WITHOUT HOED CROP).

| | | | |
|---|---|---|---|
| "E"—Oats, Banner | 20 bush. | $0.48 per bush. | $0.50 per bush. |
| "F"—Clover hay | 1 ton. | 8.15 per ton. | 7.33 per ton. |
| "G"—Ploughed for 1922. | | | |
| "H"—Ploughed for 1922. | | | |

The soil on the rotation without hoed crops is rather light and was seeded to oats on May 31. The rate of seeding was 3 bushels Banner oats, along with 8 pounds red clover, 2 pounds alsike and 10 pounds timothy. Fertilizer tests were also started on this rotation. The field was divided crosswise into four equal parts. On one part, basic slag was applied, on another slag and nitrate of soda, on another lime, and the other was kept as a check plot, nothing being applied. By distributing the fertilizers, in this way, their effect can be demonstrated on all the crops in the rotation.

YARMOUTH, YARMOUTH COUNTY.—*Operator, I. M. Lovitt.*

Since the selection of this centre for illustration work, the land has been surveyed and a drainage system installed. The fields were summer ploughed and kept cultivated throughout the fall months. The fields are in good condition for cropping in 1922. This land will be operated under a four-year rotation as follows:—

One-fourth—Hoed crop.
One-fourth—Grain and seeded.
One-fourth—Clover hay.
One-fourth—Mixed hay (or pasture).

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